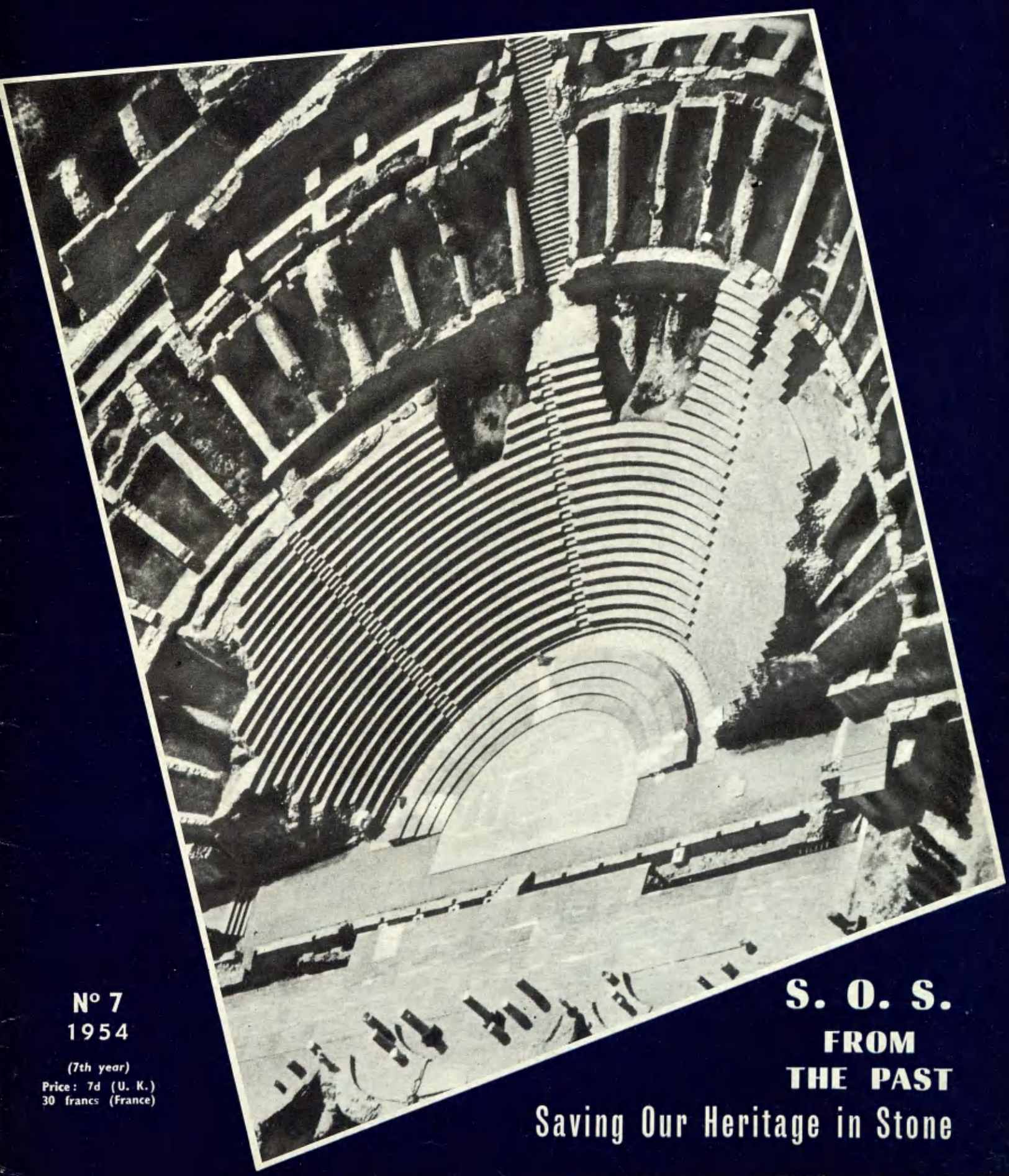
The UNESCO Courier

A WINDOW OPEN ON THE WORLD



S. O. S. FROM THE PAST

Saving Our Heritage in Stone

Nº 7
1954

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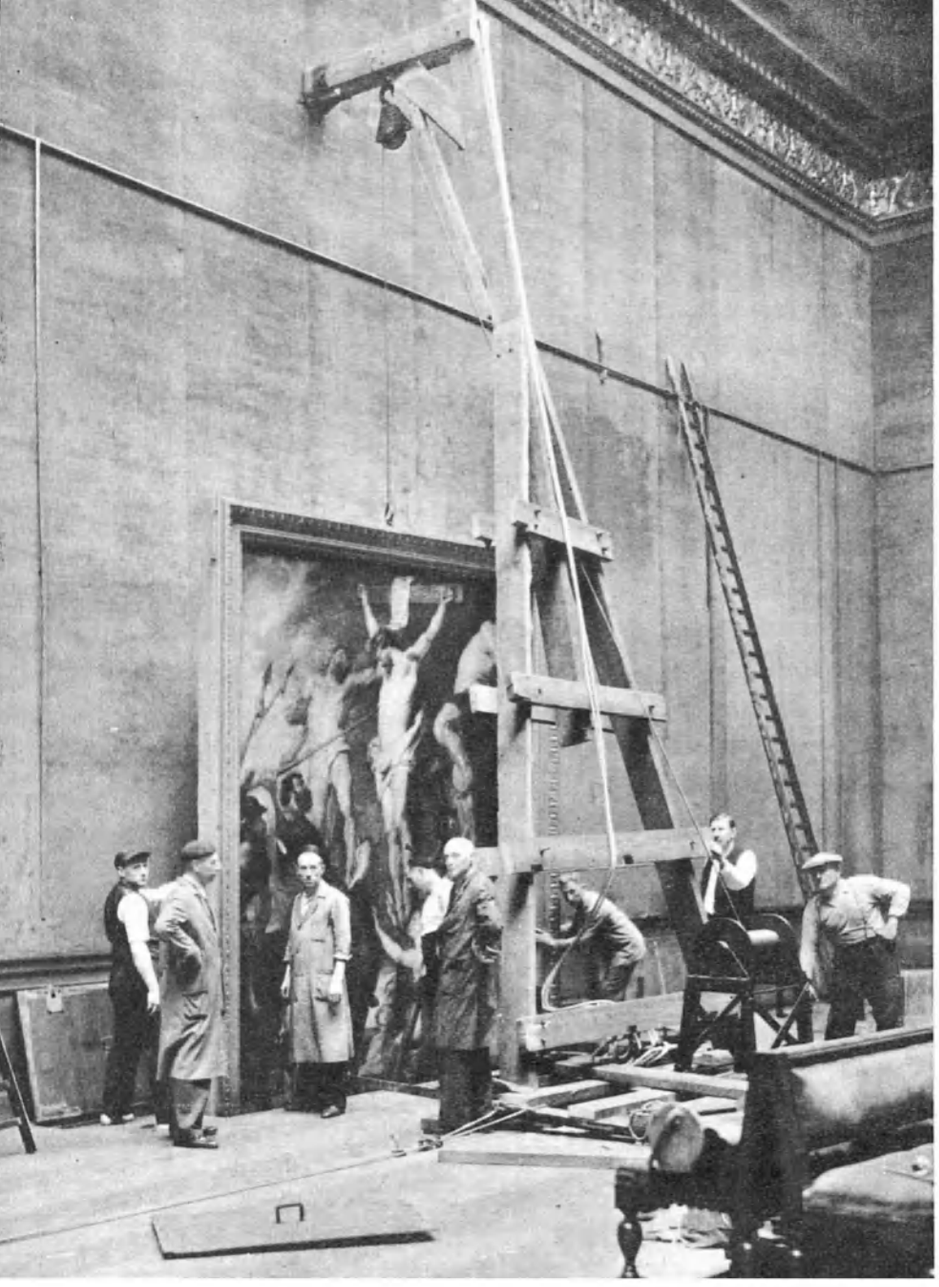
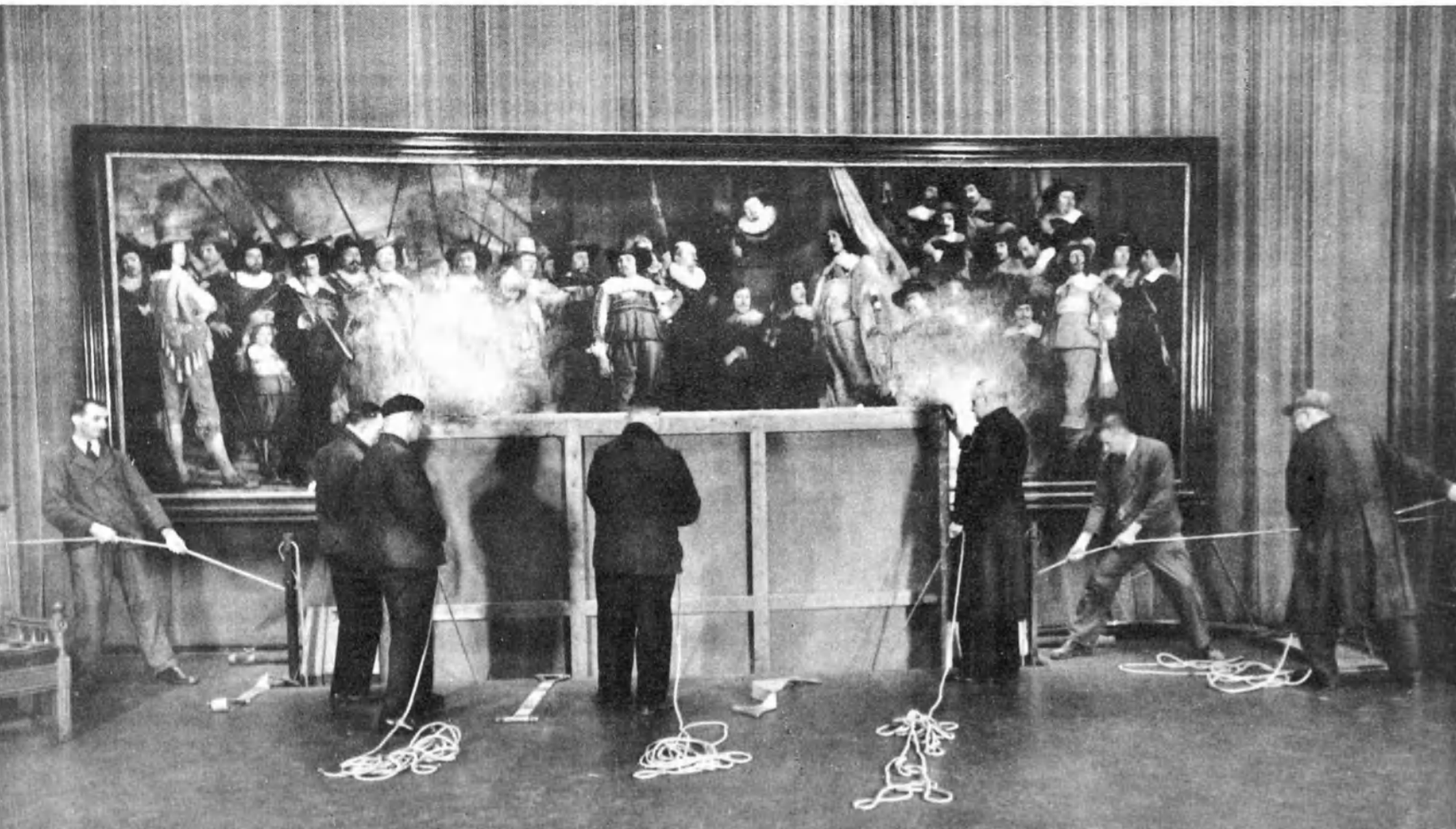


DOWN TO SAFETY

When the last world war broke out in 1939 art museums hurriedly removed their paintings and other treasures to safety. Photos show special techniques used at Royal Fine Arts Museum in Antwerp, Belgium (left) and the Rijksmuseum in Amsterdam, Holland. Through special trap doors in floor, over-sized masterpieces are lowered to safety of underground shelters. Dutch medal (above) was awarded in 1946 to those who helped protect cultural treasures during the war.



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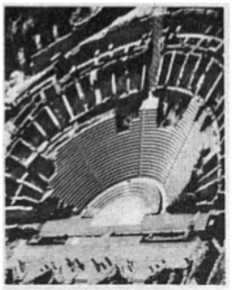


THIS MONTH'S THEME

This ancient theatre near Lyons, France, was built in the first century A.D. to seat 6,500 people and is one of the most striking monuments at the Gallo-Roman city of Fourvière. Since it was uncovered in 1946 it has undergone important repairs and now "comes to life" each year as the setting for a festival of music and drama.

WHY not face the truth? Life would be a good deal easier for many people if there were no old buildings. Ever since man stopped living in caves he has been raising edifices into which he has put the best of himself, his knowledge and his dreams. He has raised so many that it has been impossible to destroy them all, even though many allies have worked at the job — fire, earthquakes, war, invading conquerors, time and oblivion.

Every civilization has sacked, crushed, pillaged and burned. Temples, churches and entire cities have been razed. The kings of antiquity destroyed the images and sanctuaries of enemy gods; Rome sowed the ruins of Carthage with salt; Christianity overturned temples to build its first cathedrals. Modern civilization has done little better.

But in the eyes of some these losses mean little. What if there are lands where man has stubbornly striven for greatness for 5,000 years? What if these lands are literally sown with relics of past civilizations and are the altars of civilization itself? Cities drowned under sand, temples on the banks of rivers, castles clinging to mountainsides, churches, palaces, mosques. Why preserve them? Why repair and restore them? There are those to whom it is a waste of time and money.

Back in the Paris of 1945 when food was rationed and wine was rare, a restaurant owner complained one day to his customers: "It's a scandal. We don't have butter, but we pay taxes so that they can throw our money away on ruins and museums." He had a good deal in common with the farmer who wanted to pull down an old Gallo-Roman wall to make room for a chicken run.

The people who sneer at old stones are not always ignorant men. To some urban planners with visions of wide avenues, geometrically-aligned buildings and easy-flowing traffic, a stubborn old quarter with winding medieval alleys is too often a stumbling block to progress.

But not to all of them. In many a city, architects and engineers are defending the ramparts of history and their voices are echoed in municipal councils. A Gothic town hall may not be as efficient as a modern steel-and-concrete building but tourists seldom go out of their way to look at office buildings — and tourists mean prosperity for all nations.

Happily, the magic of ancient stones has lost none of its awe for large numbers of people. Today it has spread to buildings which would have been scorned by our ancestors. A humble country inn is carefully preserved because it stood at an important crossroads for two centuries. It recalls a date or a series of events which may have faded from our daily lives. Historical buildings deepen our feeling for history and the great heritage of the past which we call culture.

But above all we cherish these ancient buildings because they are miracles of beauty irrespective of the religion or civilization which produced them. We recognize that beauty cannot be the monopoly of any century or any tradition.

Today men are at work everywhere in an effort to preserve our heritage of beauty or to repair those parts which have been destroyed or mutilated by the frenzy of war. Entire nations have joined forces to protect our cultural past. Engineers and architects, curators and archaeologists are aiding each other across frontiers. Unesco has helped to organize and support their work. It has sent men to ancient Cuzco in Peru, to Ochrida in Yugoslavia, to Baalbek and Palmyra in the Middle East. It has helped create the International Council of Museums, and has prepared a new international code of law, now signed by 38 nations, to protect works of art and historical buildings should any future armed conflict occur.

Mankind's heritage is too great and too rich for us to do anything less than everything within our power to prevent it from being lost.

THE 13TH CENTURY CATHEDRAL OF RHEIMS is considered the crowning glory of Gothic architecture in France, and the Western facade one of the most perfect masterpieces of the Middle Ages. The great sculptures of the Coronation of the Virgin have been much damaged and repeatedly restored. But now they are in danger of falling to pieces. A copy of it was made in 1941 and French authorities are now considering radical steps, urgently necessary, to preserve what is left of the original work. This photo shows a detail of the central portal with the figures of the Christ and the Virgin.

Prolonging the life of our art treasures

Paintings, stone statues, temples and castles : these are our great "cultural heritage" of the past and probably the most precious possessions of mankind. If we seek to preserve them it is not just because they are old but rather for their great beauty.

Yet not even the most persistent memory of passing generations and no amount of book knowledge by itself can hope to keep them alive. No "imaginary museum" can equal the actual touch or sight of the frescoes of Ajanta in India or the Winged Samothrace in the Louvre.

But few of us realize how entremely frail most of these treasures really are. A massively built stone arch can sometimes be more fragile than a small terracotta vase. All of them need care and all of them need protection against damage, theft or destruction.

A century and a half ago Napoleon won regrettable fame for his confiscation of Italian art treasures, though his plundering was outclassed by the systematic and massive appropriations of Nazi art connoisseurs in our own time. Today it seems that official thefts of this kind have been condemned once and for all.

Certain famous works of art epitomize in their histories the vicissitudes suffered by art treasures through theft and damage. None is perhaps so representative as the renowned Mystic Lamb, a work of the van Eyck brothers, completed in 1432 and deposited in the Cathedral of St. Bavon at Ghent. In the following century one part was damaged beyond repair during cleaning ; in 1794 the four great central panels were carried off by the French and only returned 21 years later. Then most of the panels were sold to Frederick William III of Prussia and went to the Berlin Museum.

During World War I, what remained of the Mystic Lamb was kept in a secret hiding place throughout the German occupation of Belgium. The return of the panels from the Berlin Museum in 1920 provided the opportunity of completely restoring the famous work, but some years later one of the finest panels, The Honest Judges, was stolen and has never been recovered.

After the outbreak of World War II the altarpiece was sent for safe keeping to the Chateau de Pau in southern France. In the summer of 1942, the Nazis forced the Vichy Government to surrender the painting. It was transferred to one of the great salt mine repositories at Alt-Aussee where Hitler and Goering stored their booty of art treasures. Finally in 1945, it was restored to the Cathedral of St. Bavon.

But after its wartime adventures the masterpiece showed the ravages of time and needed immediate attention. Instead of relying solely on its own skill and knowledge, Belgium called in foreign specialists as well. Thus for the first time in history, a nation owning an outstanding masterpiece regarded itself not as the exclusive owner but as a trustee and summoned to its aid some of the greatest specialists in the world for consultation and advice. Today, restored to "good health" the work is back in its chapel. (See *Unesco Courier*, February 1952.)

Since then "art doctors" from different countries have gathered round other ailing masterpieces. They have examined paintings on wood at Lisbon, the works of da Vinci in the Louvre, and the frescoes of the Church of St. Sophia at Ochrida in Yugoslavia, and have advised on methods of treatment.

BRONZE PORTAL of Basilica of St. Zeno in Verona (12 th century) is one of most famous in world. It escaped damage during last war but over 5,000 churches and historic buildings were either destroyed or damaged. Since then Italy has undertaken the greatest repairing job in its history. Much of the damage has been repaired.

In all cases cleaning or restoring old paintings and protecting them against old age, dry or damp weather, cold, smoke and dust, are delicate jobs calling for extremely delicate techniques.

Since the 19th century when it was the practice to "protect" pictures by daubing them with varnish that later went yellow and mixed with the original colours, notable progress has been made in methods of cleaning and restoring. But even today techniques vary according to the painting, its age and its author, and methods are still largely a matter of individual taste.

When it comes to statues, though, science is on much firmer ground. We are no longer as completely helpless as we used to be when faced with stone or bronze that is decaying, corroding or slowly crumbling away. Diseases in stones, metals and glass were once dark mysteries ; today they no longer are—at least for the chemist.

Unfortunately the chemist is not always called in. A Swedish scientist, J. Arvid Hedvall, recently deplored the lack of systematic collaboration between the expert on ancient monuments and the scientific research worker who understood the various agents that attack stones and metals and could help prevent their destruction.

Offhand one would think that preserving a building is a much less delicate problem than restoring a painting. This is not so. Moreover the work is so costly that it often requires the financial support of the entire city or the whole nation and sometimes foreign aid as well. The care of historic buildings needs help from the man in the street as much as from the expert.

"Time passes the stones remain", the saying goes, and some of the great structures of ancient civilizations do seem to have defied time. The Great Wall of China, the Pyramids of Egypt and the great Inca temples appear like age-defiant "Shangri-las" fixed in a kind of majestic eternity. But we know just the same that they cannot escape the universal law; that they need help in resisting time's ravages.

The great square-stone buildings of Cuzco and Machu-Picchu in the Andes are in a first-class state of preservation because Peruvian archaeologists recently re-erected them by replacing all the fallen stones in their proper place.

Where the pieces exist no ancient

building is a "Humpty Dumpty." Patient effort and jig-saw puzzle brain work will "put the pieces back again." This was how many famous structures were resurrected from their ruins. One of the temples at Baalbek, the basilica at Pompeii, the temple at Paestum, the castle at Sidon (where the masonry was simply fished out of the nearby sea) and especially the great temples of Egypt were all no more than gigantic jig-saw problems for the engineer.

In most cases though, preserving a building means having to repair it. The Chateau of Versailles would soon be a pitiful ruin were it not for the carpenters, masons and roof repairers who are today busily—and hastily—at work on it. Engineers predicted the palace would collapse within 60 years unless something was done to save it. France is now raising 5,000 million francs ($14,000,000) to rescue Versailles.

In Europe buildings that have been properly repaired may be left alone for quite long periods, but in the monsoon lands of Asia preservation demands frequent attention on a scale unknown in the West. In India, Indonesia, Cambodia and elsewhere, annual repairs are necessary to prevent the infiltration of water into walls and the invasion of swiftly spreading weeds and plants —disastrous for ancient buildings.

Threat to Taj Mahal

Thus, the world-famous Taj Mahal in India has been under constant care since 1936. The great dome was completely repaired and the pillars and broken lintels were dismantled and replaced. (Fantastic as it may seem, a proposal was actually set afoot in 1828 to demolish the whole building for the value of its marble and was seriously considered for seven years).

Resurrecting a monument from its original stones and pieces strewn on the ground is technically known as anastylosis. There is practically no controversy among experts about the usefulness of this procedure just as there is general agreement about the need for regular maintenance work. But the restoration of damaged or destroyed sections of an ancient building is another matter. Not so long ago, in fact, just the mention of the word restoration touched off violent discussions and arguments between the experts (1).

In the 19th century, a young French architect-historian named Viollet-le-Duc, appeared on the scene. He revealed to France and to the outside world the logic and beauty of Gothic architecture which was then despised as a "barbarous" medieval construction. In due course he became the chief prophet of the Gothic revival, and restored the walled city of Carcassonne and cathedrals at Amiens and Laon.

Unfortunately, Viollet-le-Duc carried his love of Gothic a little too far. He felt that the style had reached its most perfect purity in the 13th century and imagined therefore that all Gothic churches and buildings should have a single unity of style. Under his influence, many Gothic structures were rebuilt according to what was considered the "pure" Gothic. Where a church differed it was "brought into line" by skilful imitation.

Thus the flamboyant balustrades of Amiens Cathedral were replaced with parts copied from Chartres, and the Renaissance features which had been added to Gothic buildings between the 17th and 18th centuries removed.

Worse was done to the little church of Saint Laurent which stands next to the Gare de l'Est in Paris. The facade with its superimposed columns was completely demolished to make room for a Gothic facade. The survival of two styles in the same edifice seemed an absurdity to the old restorers and not worth discussing since it was a glaring departure from stylistic unity.

The restorers of the Viollet-le-Duc school actually thought they were doing a great service to history and art. In reality they were purists who could not see that styles, like people, vary and that buildings, like nations, have histories that evolve with time.

Today, the old Viollet-le-Duc concept has been discarded. The tendency now is toward straight conservation with all restoration excluded as far as possible. As a rule, the experts try to leave the works of antiquity untouched. If a new part must be added, they are careful to construct it with materials completely different from the original ones so as to avoid any confusion.

The curious thing is that the old battle is still going on today—more often between the experts and the general public which has taken quite a lively interest in restoration questions. "Don't restore the crumbling church in its original form", say the experts. "Rebuild it exactly as it was before!" cry the citizens for whom the ancient edifice was hallowed in tradition. This was how the great Campanile of San Marco in Venice was entirely rebuilt early in the century after its collapse in 1902, when the whole city clamoured for it to be done. The Campanile is now usually cited as the classical example of reconstruction by pure imitation.

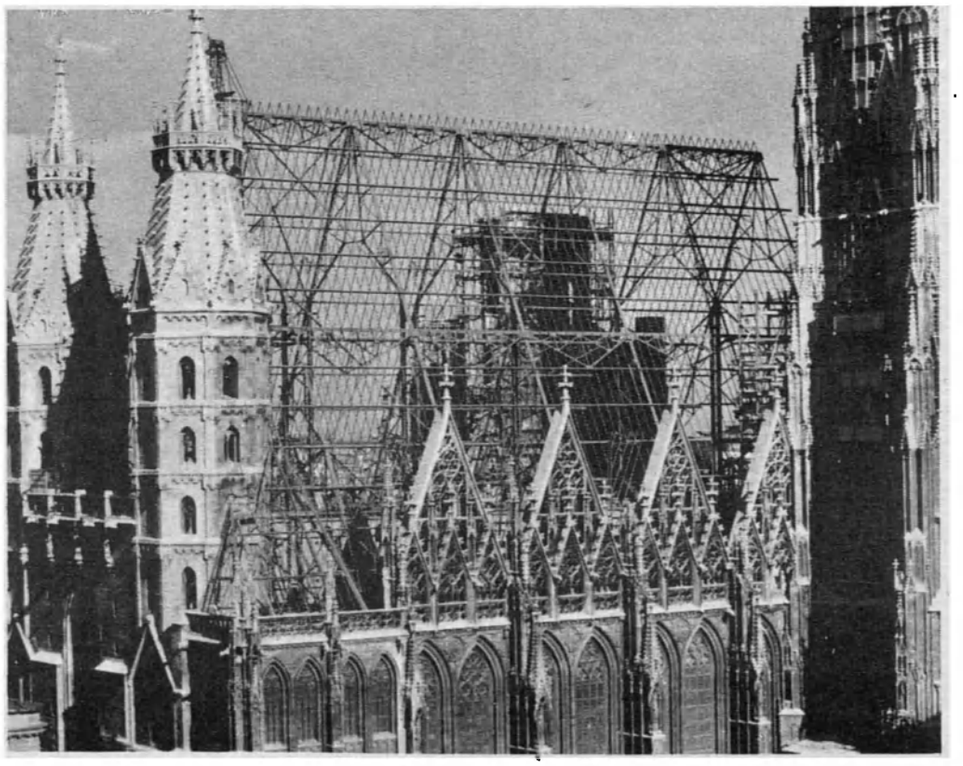
War's 'red-hot rake'

Before the last war the preservation of historic buildings was still a relatively simple affair. It was nearly always prompted by the more or less justifiable desire to restore the original appearance of a masterpiece even though it was neither damaged nor likely to fall into ruins. Most countries cleared away encumbrances blocking parts of a building. Walls obstructing the view of a loggia or a porch were torn down; stones were scraped clean to uncover ancient capitals and cornices. There was nothing urgent about the work and most of it in fact was hardly necessary.

But when the last war ended, "a red-hot rake" as Winston Churchill termed it, had been drawn across all of Europe. So much had been lost that something had to be done—and done fast to salvage at least the remnants of what was left. But what? Conserve the ruins? Restore them partially? Restore them totally or construct new buildings? There was no easy answer.

Great Britain, which has never been favourable to the idea of restoration has sought to preserve the ruins of her abbeys and churches and some of her bombed monuments. The Ruskinian tendency to "let approach the sad day of ruin" was against undue intervention. Instead of being repaired, certain churches were left as ruins and a garden was made around them. Thus, surrounded by green lawns and flowers,

(1) *In speaking of preservation, experts distinguish carefully between the two words conservation and restoration. The first means prolonging the life of a building without making any marked changes in it; the second implies more radical changes such as replacing destroyed parts or exposing original sections that had been covered up.*



STEFANSDOM: Famous high pitched roof of Vienna Cathedral, Austria's noblest Gothic structure (15th century) burned for three days in 1945 and was totally consumed. Photo shows steel framework built to replace former wooden one. Concrete platform was built to protect the arches of the aisles. Roof has now been completely restored.

they have an air of romantic charm.

But even the British recognized that this was no answer for all destroyed or partially destroyed buildings, and Exeter Cathedral, for example, which was severely damaged, was carefully repaired and restored after the war.

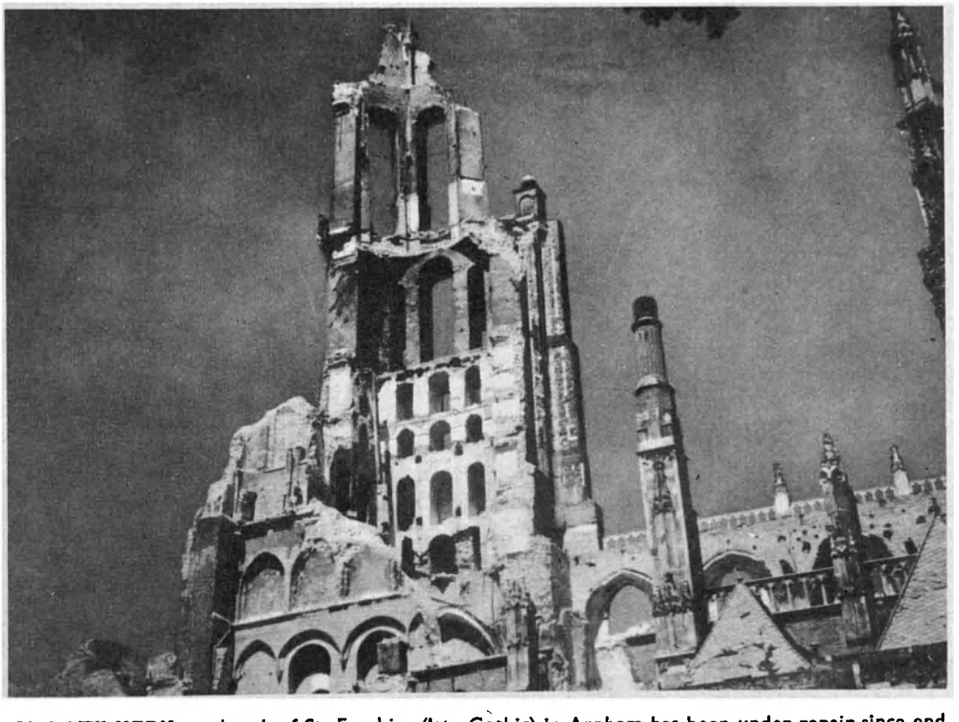
The countries of Europe realized that they simply could not leave their churches and other buildings in ruins. Some compromise had to be reached with the pre-war rules of restoration. Restoration for the purpose of simple consolidation gave way to the reconstruction of important parts of a building or to something midway between restoration and the construction of a new building. Almost everywhere it was decided to restore badly damaged historic monuments.

The reconstruction of enormous surfaces in cathedrals often seemed impossible at first sight, but finally it was accomplished, even down to the sculptures—a job for which craftsmen had to be trained. Modern engineering and architectural techniques have made much of the rebuilding possible. Without reinforced concrete and steel beams, for example, many roofs might never have been rebuilt nor crumbling walls strengthened and straightened.

Thus, in the cathedral at Poznan, Poland, where the walls had been seriously weakened by fire and threatened to collapse outwards, a system of reinforced concrete blocks and props was used to bolster the structure.

Today the preserving, the repairing, and the restoring goes on. In the face of the uncounted ruins of the recent past, men of all nations have shown that they refuse to abandon the artistic wealth we have all inherited, and of which each generation in turn is the trustee. Our world is often accused these days of being too materialistic. The example of these men shows that we sometimes do prize beauty above all else.

Much of the information in this article is based on material which appeared in Unesco's publication, Sites and Monuments, *a study of current problems, and also on material published in Unesco's Quarterly review* Museum.

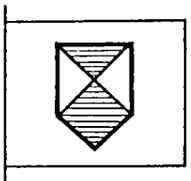


GROOTE KERK or church of St. Eusebius (late Gothic) in Arnhem has been under repair since end of last war. Famous 318 foot West Tower, almost totally destroyed, is still in ruins. Over 1,000 ancient monuments were destroyed or mutilated by the war in Netherlands.

$ 14,000,000 REPAIR BILL

Three centuries of war, weather and revolution have dealt severely with the palace Louis XIV built at Versailles on the site of a hunting lodge. Leaks sprouted under its 30 acres of roofs, beams were rotting and its famed Hall of Mirrors (above) was in danger. Engineers predicted the palace would collapse within 60 years, unless something were done to save it. Something is being done. France is raising 5,000 million francs ($14,000,000) to save Versailles—not only to preserve it as a monument to one of the high-water marks of French civilization but to recreate the atmosphere of its most glorious days. Once certain apartments have been refurnished, once its theatre has been stripped of gloomy 19th century alterations, and once its life is no longer in danger, Versailles is to be a centre for dramatic and musical festivals and not merely a museum.

THE FLAG WITH THE BLUE AND WHITE SHIELD



A flag with a blue and white shield is now the international symbol for the protection of great cultural treasures and historical monuments the event of any future armed conflict.

On May 14, 1954, the representatives of thirty-seven governments including the United States of America, Soviet Russia and France, signed their names to a new international convention to protect cultural property from destruction should conflict break out within any country or between countries (1). The new convention thus sets up what is tantamount to a cultural "Red Cross" under the banner of which works of art, monuments and historic buildings would receive the same sort of protection as is now universally given to hospitals, ambulances and medical personnel in time of war.

An international code of protection of this kind has been considered necessary for a long time and has become particularly vital since the ruthless fury of the first and second World Wars left a path of destruction in its wake unprecedented in the history of mankind.

Certain limited steps for safeguarding the objects our civilization cherishes have been taken in the past by individual countries. In 1935 the Roerich Pact was signed in Washington but it applied only to countries in the Americas and contained no measures for international control. The Hague Conventions of 1899 and 1907 also contained provisions for protecting cultural property but these were so vague and imprecise that its practical effects were nullified.

In 1937 the International Museums Office drew up a draft agreement which was submitted to the League of Nations. Before it could be adopted war broke out.

This preparatory work, however, was not completely wasted since during the war a number of governments, influenced by the League's plan, actually adopted some of the measures advocated even though they were not bound by any convention.

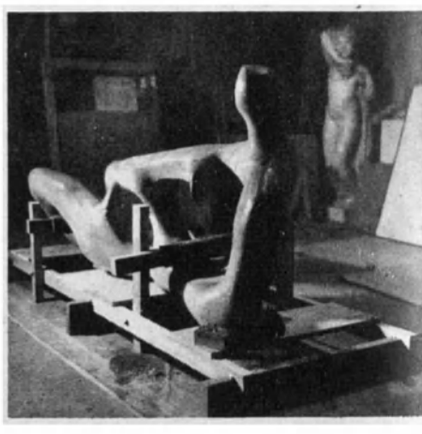
Thus the United States set up a special commission in 1943 "for the protection and salvation of artistic and historic monuments in war areas." A special officers' corps, known as M.F.A. and A. (Monuments, Fine Arts and Archives) was set up by the Allies. The German armies had a "Kunstschutz" as early as the 1914-18 war. Two orders issued by General Eisenhower, Commander-in-Chief of the Allied Forces, contained precise instructions for the safeguarding of cultural property. The first issued in December 1943 concerned operations in Italy; the second, in May 1944, operations in Europe following the invasion of June 6. They laid down the principle that it was the duty of each army commander, within the limits of possibility, to respect the cultural heritage of the countries where troops were engaged.

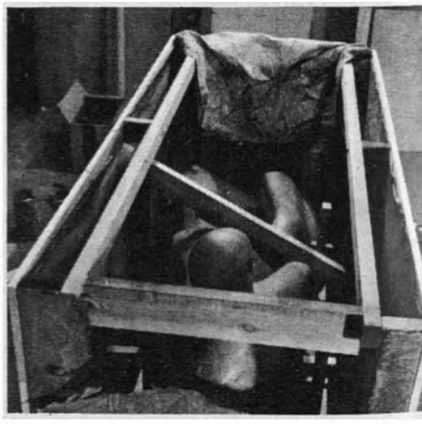
The last war however was also characterized by systematic pillage of cultural objects in the occupied countries. A new technique was used to dispossess the rightful owners of their works of art under a semblance of legality. By demanding huge daily indemnities from the occupied countries, deliberately forced transactions were made to appear like free commercial dealings.

(Continued on page 10.)

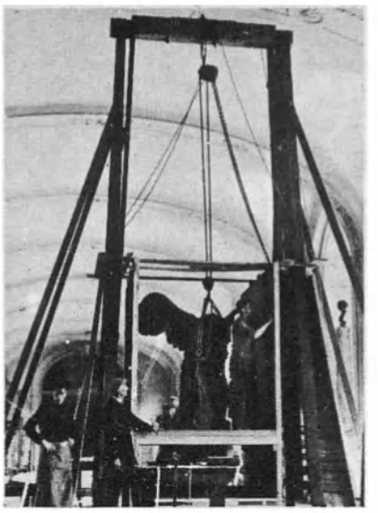
(1) *Andorra, Australia, Belgium, Byelorussian SSR, China, Cuba, Czechoslovakia, Ecuador, France, German Federal Republic, Greece, Hungary, India, Iran, Iraq, Ireland, Israel, Italy, Libya, Luxembourg, Monaco, Netherlands, Nicaragua, Norway, Philippines, Poland, Portugal, Rumania, San Marino, San Salvador, Spain, Syria, Ukrainian SSR, U.S.A., Uruguay, U.S.S.R., Yugoslavia. (Lebanon has since also signed).*

MOORE IS BOXED UP

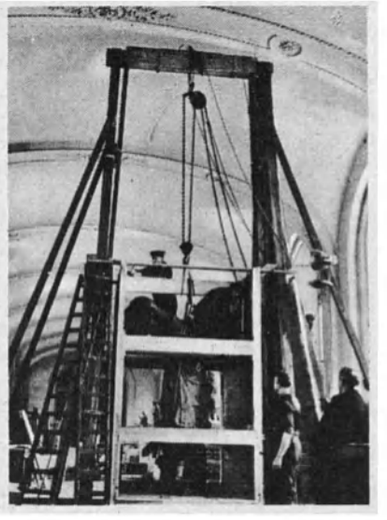




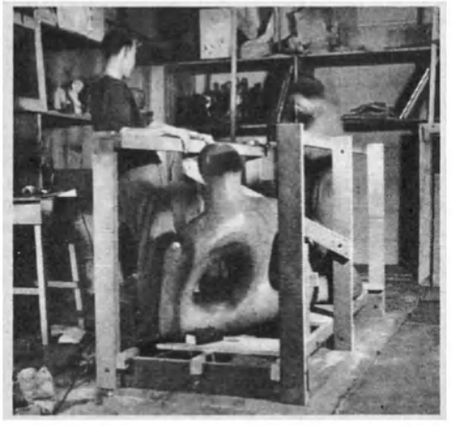
Large sculpture by Henry Moore in San Francisco Museum of Art in US is given special packing for shipment. Special bolts not nails are used to join wooden boards and protective covering is used where each bolt may touch sculpture. Photos on this and following page, as well as page two, are taken from a special study just published in French by Unesco which describes the latest "Techniques for the Protection of Cultural Property in Case of Armed Conflict".

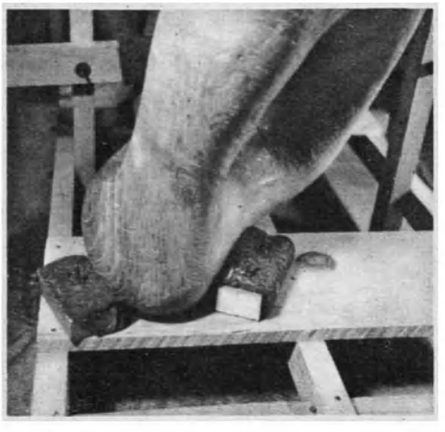


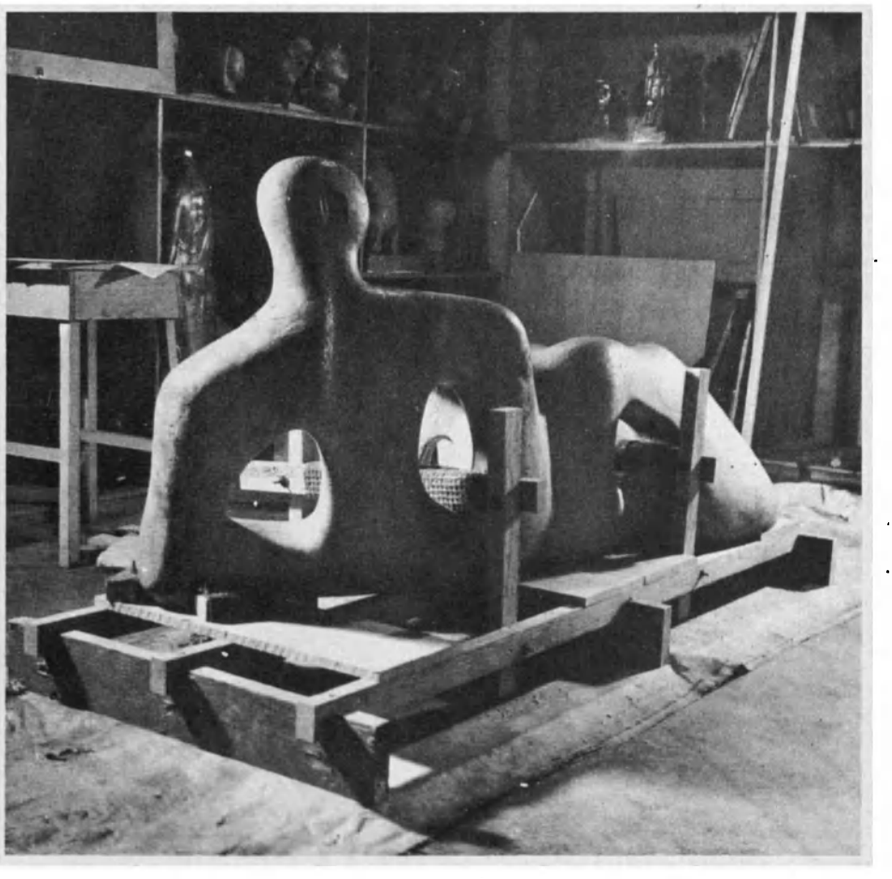
SAMOTHRACE PACKED AWAY



Monuments, works of art, precious books, scientific collections and all objects which make up the cultural heritage of a nation run grave risks in case of war, and various measures have been devised for protecting them. Here, the famous Winged Victory of Samothrace in the Louvre, Paris, is shown being packed in case built around it after outbreak of war in 1939 and shipped to special shelter. (Photos Marc Vaux and Laure Albin Guillot.)







(Continued from page 8.)

In January 1943, eighteen Powers signed a Joint Declaration in London solemnly condemning these acts of pillage. The armistice agreements with Nazi Germany and her satellite states later provided for the restitution of art and other types of cultural property plundered. Often they were more or less seriously damaged. Many were never found.

The whole problem of the preservation of historic treasures and famous buildings has since then been reassessed and new solutions sought in the light of the inadequacy of existing international agreements and the failure during World Wars I and II to prevent tragic and irreparable losses.

In 1949, the Netherlands proposed that Unesco investigate the problem fully. The following year Italy suggested that an international convention be prepared and submitted a preliminary draft to Unesco's General Conference in Florence as a basis for future discussions.

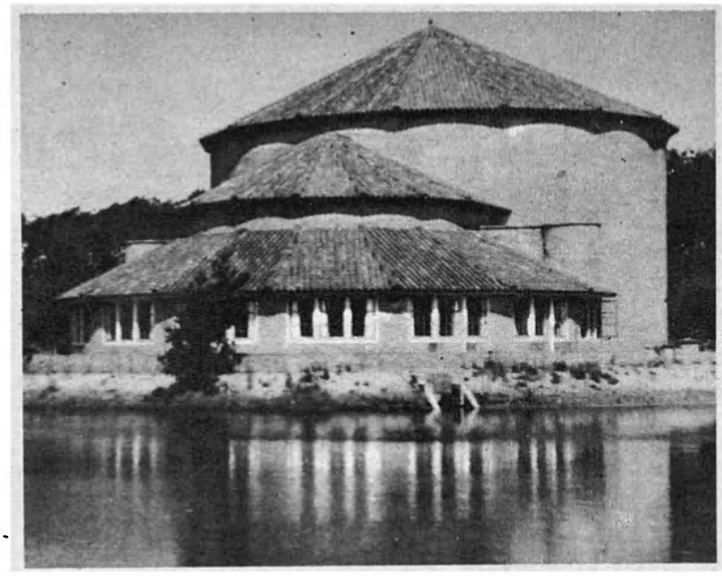
For the past four years Unesco has worked on drafting the new convention with suggestions coming from its member governments and the International Council of Museums. After lengthy discussions at a special conference in the Hague, it was finally signed by 37 countries and will enter into force as soon as five of these have formally ratified it.

The Blue Shield Convention represents an important step forward in international law. It takes into account all previous agreements on the subject, complements them, and brings them into line with present-day needs. The signatories recognize that the threat to cultural treasures is today increased by the suddenness with which hostilities break out, the force of new destructive weapons and the large areas over which wars extend.

While it would certainly be over-optimistic to suppose that the convention will save all treasures in case of another war, experience has shown that measures can be taken to restrict the damage—if planned well in advance, during peace time.

The signatories therefore pledge themselves to take a number of unprecedented peace-time steps: 1) special bomb-proof shelters, taking into account the power of modern weapons, will be built to house movable objects such as art works, manuscripts, scientific collections, archives and treasured books. 2) Detailed technical plans will be elaborated and be ready to be put into operation to protect buildings; various other kinds of protective measures will also be worked out. 3) All armed forces will set up monuments and fine arts services in peace time with special personnel trained in protection. 4) New provisions for the respect of cultural property will be introduced into military regulations applying to all troops, and the importance of the regulations explained. 5) An International Register, designating in advance those edifices which will enjoy special protection in wartime, will be created and kept by Unesco.

If a civil war or any other armed conflict should occur these buildings will immediately hoist the Blue Shield Flag or be marked with three huge blue and white shields clearly visible from the ground and air. Governments agree not to use such buildings for military purposes and to leave them immune from attack. This immunity may be waived, says a clause, "only in cases where military necessity imperatively requires such a waiver". The inclusion of this clause was the subject of considerable and heated discussion at the Hague. It was finally adopted with a limiting proviso however, stating that immunity cannot be withdrawn for



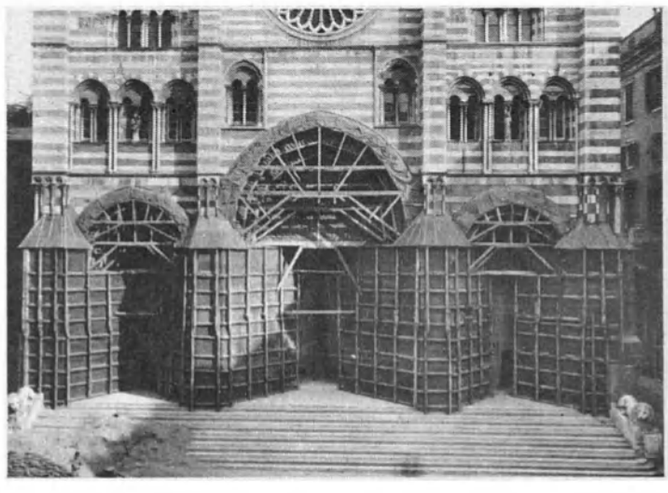
This reinforced concrete shelter in the Netherlands was built before the last war to house works of art in case of hostilities. When World War II came hundreds of paintings, statues and other treasures were placed in its vaults for safekeeping and were thus saved from destruction. Entire framework is made of steel bars one inch in diameter. The walls are 15 feet thick and the roof, at highest point, 30 feet thick. In most structures roof is most vulnerable.

reasons of military necessity except by an officer commanding a force of at least a division or more. In no case may reprisals ever be made against cultural property.

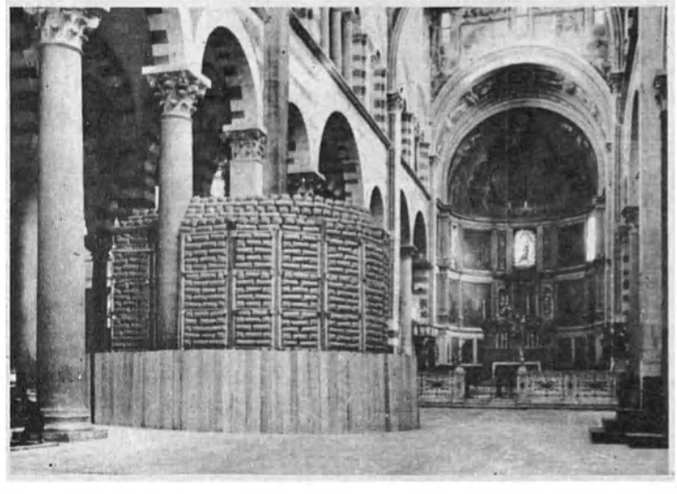
Special protection will be granted to a limited number of refuges where works of art and other movable treasures are placed in safe keeping. Like Red Cross ambulances, vehicles transporting works of art to safety will bear the special Blue Shield markings. They will be granted special protection to transfer great cultural objects within a territory or to another territory and will be immune from "seizure, placing in prize or capture".

Persons guarding property are to be allowed to carry on their work if captured, and in all cases of either partial or total occupation of a country, cultural property will be safeguarded and preserved. All acts of vandalism, any form of pillage or theft or misappropriation are henceforth prohibited by the new code of international law. The signatory states pledge themselves to prevent such acts and if they should be committed to take the necessary steps to halt the expropriation of art treasures.

An additional Protocol provides that works of art cannot be exported from any territory under occupation and lays down that they can no longer be retained as war reparations. The signatories to the Blue Shield Convention finally pledge that any persons, of whatever nationality, who violate the Convention or order it to be violated, will be prosecuted on criminal grounds and penal or disciplinary sanctions imposed.



Protection of the main portals of the Cathedral in Genoa, Italy, by strongly revetted sandbag wall.

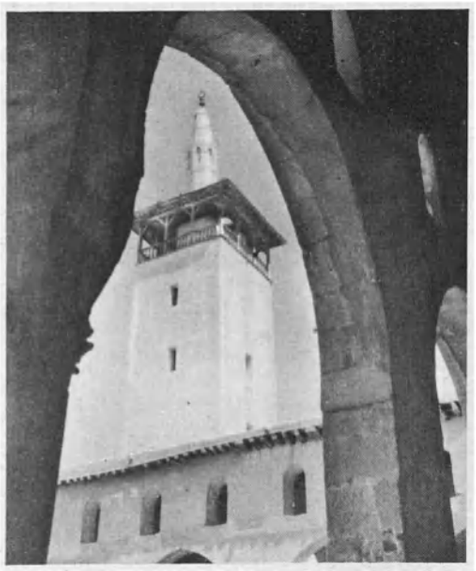


Pulpit of cathedral in Pisa, Italy, protected by sandbagging against bomb splinters and blast.

The city of Tripoli in northern Lebanon is noted for the peculiarly oriental fascination of its narrow streets teeming with life, its historic souks (bazaars), khans (caravanserais), hammams (baths), mosques and madrasahs (Mohammedan colleges). These are set among houses and shops in an amazing tangle of arcades, vaults, projections, domes and minarets. The old town owes its distinctive character to the old madrasahs, converted into mosques, rather than to the mosques themselves. (Photo shows Al Burtasiyat madrasah with square-minaret near the old bridge crossing the Nahr Abu-Ali). Lebanese authorities are today faced with problem of modernizing the city and Unesco specialists have suggested schemes for doing so by careful re-planning which will enhance rather than destroy the beauty of the ancient monuments.

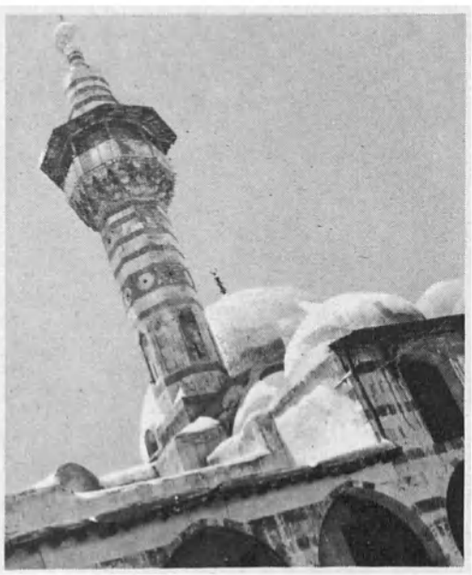
TREASURES OF LEBANON AND SYRIA

Minarets of Damascus



The Mozaffari Mosque (1202-1213)

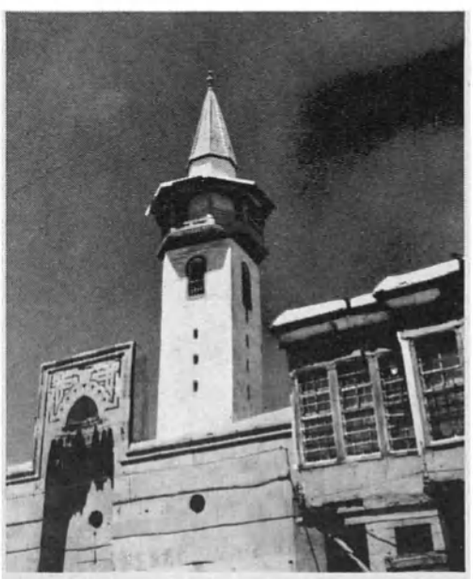
Sheik Mohiy ad-Din (1518)



Al-Muradiya Mosque (15th century)

Manjak Mosque (1368)

Madanet el-Qali (1470)



Jami Juban (14th century)

STORY in STONE

THE CITADEL OF ALEPPO, with its deep moat and its steeply sloping bank, etches a lacy crown around the hill formed by the accumulated ruins of older civilizations. At its foot spread out the serried network of thoroughfares converging from desert and sea. Relic of the struggles between Arab and Crusader, the citadel is symbolic of the city which, throughout its long history, has weathered events that brought ruin and death everywhere around it. The Syrian Government has already done considerable work on the restoration of the citadel, the city walls, and other monuments. Aleppo has over 200 mosques. For a better idea of the steepness of slope around the citadel, turn photo upside down.

Between the Euphrates and the Mediterranean there are lands which are literally sown with the relics of civilizations gone by. In towns, villages and deep in the desert, there are marvels which might well be the envy of a score of nations.

These countries, among the richest in history and in its heritage of stone, are today setting an example to the rest of the world in protecting the past. The names of their monuments have a grandiose ring : Tyre, Sidon, Byblos, ever-prosperous Tripoli, and Baalbek in the Lebanon where the emperors of Rome trekked in pious pilgrimages 1,800 years ago; Damascus, Aleppo, St. Simeon Stylites, Qusee-Heir, the Krak des Chevaliers, Palmyra in Syria...

Here preserving ancient monuments requires more than good intentions. Many of them lie in remote oases separated by hundreds of parched miles from the nearest city. Others are buried in sand, still others nest like eagles on isolated peaks.

During the early centuries of the Christian era, villages huddled around monasteries sprang up on Syria's northern plateau, bounded on the west by the valleys of the Orontes and the Afrin Rivers. Water tanks made life possible on this great stretch of limestone and villages prospered with their olive groves and vineyards. These were peaceful centuries; oil and wine travelled down roads protected by Rome.

But Rome fell. The roads were no longer safe and the villages became deserted islands. For 1,200 years, the plateau remained lifeless and its ruins were left in the hands of time.

Today, peace has returned to the plateaux and with it the people of an independent Syria. Obviously, this is progress. But what about the old basilicas in the forgotten villages? How can you stop new farmers from tearing them down and using their stones to build barns ? Ideally, the answer would be to station a curator with a platoon of guards in every village — but that would not be a practical solution for Syria or any other country.

Obviously, the military and the religious works left by the Crusaders deserve to be saved. They contain some of the most beautiful vestiges of medieval architecture on the face of the earth. But the mere maintenance of these enormous stone blocks — to say nothing of reconstructing entire sections ready to crumble at any moment — is far beyond the budget of any one ministry.

In Syria, as in the Lebanon, the Government's Antiquities Service has done remarkable work, but its means are limited. The Krak des Chevaliers, one of the most famous of all Crusaders' Castles, was restored in 1936 after tremendous effort. Walls were rebuilt, arches were repaired, an entire staircase was reconstructed, missing sections of windows were fitted together and the entrance to its great hall was completely restored.

Then new disasters struck; lightning demolished the tower and plants began to invade the foundations. Maintaining the Krak des Chevaliers is a never-ending task—and this is only one castle among the many in Syria.

Still, this problem is simple compared to the dilemma in

the expanding cities of Syria and the Lebanon. Since the war, these cities have been confronted with the need to adapt themselves to new ways of living. Within three decades, they have watched their populations double or triple with a corresponding increase in political and commercial activity.

New buildings, offices, factories and hotels have sprung up on the sites of ancient cities. New municipal services have been grafted onto the old ones—or else have replaced them. In new sections the engineer and the technician have been able to find solutions. But there remain the old hearts of cities with their crystallized architecture dating back centuries. Can they be changed without being destroyed or, at best, disfigured?

Faced with these problems, Syria and Lebanon both decided to enlist the help of impartial international experts. The two countries requested advice from Unesco and, in 1953, Unesco was able to furnish them the services of Professor Paul Collart of the Universities of Geneva and Lausanne and Armando Dillon, superintendent of historical monuments at Palermo, Sicily. In the Lebanon, the two men worked with Emir Maurice Chebab, Director of the Lebanese Service of Antiquities; in Syria, they carried out their mission with Dr. Selim Abdul-Hak, Director-General of Syrian Antiquities. Illustrated with maps, plans, sketches and photographs, two reports which were drawn up these missions have just been published by Unesco (1).

These books, written in elegant but simple style, are intended not only for specialists but for any reader interested in the fascinating history and beauty of Syria and Lebanon. Their pages contain moving passages on Baalbek and Palmyra, Tripoli and the Crusaders' Castles, on "the land of countless ruins", the "dead cities of the North", and "the great ruins in the desert."

The authors point out that even the most illustrious of palaces or temples needs to have a good road leading to it if visitors are to be able to reach it—and provide the money required to keep it alive.

In the words of the mission: "It should only be necessary to improve certain sections of roads and establish one or two conveniently situated and unpretentious but well-run hotels or rest-houses, where visitors can eat and sleep in pleasant surroundings... to organize tours either by road or air. In this respect, Greece, where the tourist trade has advanced by leaps and bounds in the space of a few years, and is now making a considerable contribution to the country's economic resources, seems to us to provide a particularly good example of what can be done in this way."

From the wonders of the desert, the missions then turned to the growing pains of the historic cities of the Middle East. The old quarters of Damascus, Aleppo and Tripoli hide unbelievably beautiful works nearly always ignored by tourists in a hurry. Most of these buildings are inextricably tangled in a seething mass of shops, warehouses and homes which, together, form the picturesque *souks*.

Of course the *souks* are anathema to a certain school of city planning which holds that a street must be a mighty river ignoring the houses on its banks and mercilessly washing away any pedestrians who might venture onto it. In these cities of the Middle East, many a planner has proposed at least the partial destruction of old quarters as alive and as useful today as at any period in their history.

The Syrian and Lebanese Governments, disturbed by the possible effects of these plans on the historical and artistic value of ancient buildings and on the character of the bazaars, asked the Unesco mission to weigh the arguments for the preservation or destruction of the old quarters.

Concerning the Syrian city of Tripoli, for example, the authors explained the character of the quarters affected, their peculiar features and their right to survival after making allowances for the requirements of a modern city. They wrote:

"The bazaars, set among houses, mosques, khans, hammams, and madrasahs, might be compared to the arteries and veins of a living body; time and use have made them throb with a life that gives some inner meaning to every corner, every view. They are inseparably linked with the motley-dressed crowd and the shops crammed with wares.

"These are not streets in the modern sense of the word: nowadays, in the new districts, the street is public property; at the same time it is necessary to all the houses on either side. But here, the street is hewn, as it were, from the substance of the architecture itself. Making one's way through the *souks* is like joining a natural process of ebb and flow, drifting with a current, walking through the very buildings. Every corner has an air of its own.

"Yet one can pass repeatedly along the same stretch of road, or walk round and round the same khan—quite unaware that one is doing so. Merely to turn back is to have the impression of seeing something fresh, as though peering at the ever-changing forms and colours of the patterns in a kaleidoscope. In the maze of streets which seem to put out fresh tentacles, intertwining to lead us astray, the monumental doorway of a mosque or madrasah, the lofty pinnacle of a minaret, or a glimpse of some dome or khan, serves as a reassuring landmark.

"All big modern towns now have their 'stores'— great complex buildings which, like the khans and caravanserais of former times, are planned to include large warehouses, and where goods of every type can be found. To a visitor, the old town of Tripoli looks like one enormous store, with its different departments for produce and manufactured articles, handicrafts and business negotiations.

"It is delight to stroll through the *souks*, sheltered from sun and rain, wind and dust, admiring the wide range of goods on sale, from costly jewellery offered by the goldsmiths, deep-piled carpets and an endless variety of multicoloured textiles, to fruit vegetables and sweetmeats.

"The visitor has the same pleasure here that he feels in wandering through the by-streets and *mercerie* of Venice or the old parts of Vienna, Paris or Florence. Leaving the wide streets where the traffic is controlled by police and signals, to plunge into the old districts where modern vehicles cannot penetrate, he feels relaxed and rested."

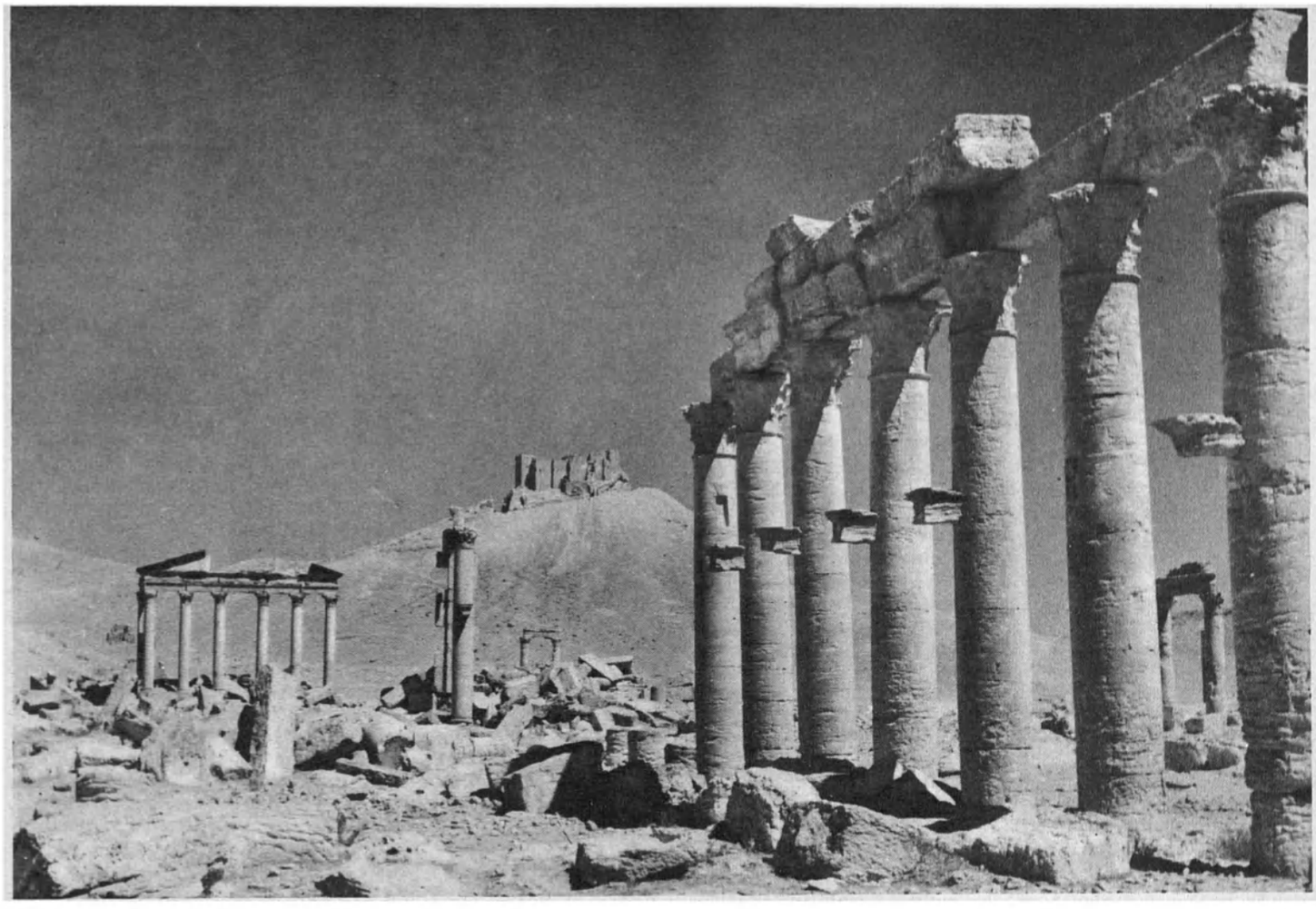
KHANS such as the Al-Khayyâtin khan in Tripoli (above) are the business centres—caravanserais or storehouses—of the old towns of the Lebanon and Syria. For 600 years tailors have been working in the shops among the arcades of this one.

The report recognizes that these quarters may have to undergo change, but it pleads for prudence. The authors lay down a principle: the preservation of historical monuments is not merely a convenience, but is a moral obligation as well. These monuments stand as symbols of spiritual values; as long as they stand, they are part and parcel of the education of a people. Their destruction means turning our backs on what we have inherited from our ancestors.

The conclusions drawn from this study of a few cases in Syria and the Lebanon are valid in every country—at least, in every country where man has been able to leave age-old traces of his labour and of his genius. In every city with historical monuments worthy of the name, citizens are coming to realize that saving their monuments is in their own interest. It is the responsibility of the town planner to conserve these monuments and even to create more favourable surroundings for them, taking into account their proportions, their character and their style.

As Professor Collart puts it, "far from hindering the natural development of a city, (historical monuments) should continue to embellish it, being given their rightful place in the scene so as to do full justice to their cultural significance as well as to the needs of modern life. To that end, efforts should also be made to allow historical monuments to serve their original purpose, or to find a suitable new one for them, so that they are not left aside as useless relics of the past but play a real part in the life of the city."

(1) *"Lebanon" Volume VI (price $1.25 ; 7/6 ; 350 fr) and "Syria" Volume VII (price $1.50 ; 8/6 ; 400 fr) in the collection "Museums and Historical Monuments".*



It was not until the close of the 17th century that the ruins of Palmyra, forgotten and fallen into decay, were rediscovered. In background stands Palmyra's ancient Arab castle.

The Land of Countless Ruins

SYRIA is a corridor and a meeting place. From east to west and north to south, it is traversed by two natural highways, one winding through the valleys of the Euphrates and Orontes to link the East with the Mediterranean world, and the other carrying the northern peoples southwards to Africa. Through the ages the country has been occupied for short or long periods by Mesopotamians, Egyptians, Hittites, Assyrians, Persians, Greeks, Romans, Arabs, Crusaders and Ottomans. In Syria—at Kadesh and the Yarmuk—some of the great clashes of history have taken place. Out on the Syrian desert, 150 miles northeast of Damascus, stands Palmyra, the Tadmor of the Bible, said to have been founded by Solomon. Before the Christian era, the city was a trading post on the camel route between the East and the Mediterranean world. But its real glory came after the Romans captured it in 130 A.D. and made it the headquarters of a great colony and outpost against the revival of a Persian empire. Under Odenathus, ruler of Palmyra, and later his widow Zenobia, the city became virtually independent. Zenobia extended her domain until it reached from Egypt to Mesopotamia and came into conflict with Rome. Her armies were defeated by the soldier-emperor Aurelian and Palmyra fell in 273. Zenobia was taken away in chains but the Palmyrenes revolted. Aurelian returned swiftly and destroyed the city. Thereafter the caravans took other routes and the magnificent ruins remained stark and empty under the desert skies or else slowly vanished under the sand.

PALMYRA

THE Syrian desert is not uniformly barren. There are enormous stretches of steppeland, where life is not impossible, or at least not permanently so. The winter rains, rare though they are, make the pastures green and fill the water-holes. The wandering Bedouins manage to feed their flocks all the year round; and their camps are found here and there in the desert solitudes. In some places indeed, there is sedentary as well as nomadic life; near a well or a spring a group of dwellings may be built, palm trees grow up and crops are cultivated.

The necessary conditions for the development of certain sites, when circumstances are favourable, may thus be found. At certain times in history, irrigation work has been undertaken to assist crop growing and reservoirs have been dug to make permanent settlement possible. Trade has provided a means of livelihood for a larger population than the products of the earth would have sufficed to maintain. Military defence requirements have led to the building of forts and castles, and the necessary supplies for those who manned them have had to be found.

This accounts for the establishment of the great desert routes, with their chains of halting-places at the only spots where the existence of natural or artificial resources made life possible. The natural route from the Persian Gulf to the Mediterranean, via the Euphrates valley to Aleppo and Antioch, was shortened by the short cut across the desert which of necessity passed through Palmyra, either continuing straight to the Homs Gap or turning south towards Damascus and Palestine. Settlements grew up, at each end of the desert route or at oases along it, or again at strategic points such as river crossings or mountain gorges.

The ruins of Palmyra are striking both for their size and their wonderful state of preservation. From the regular chessboard pattern of the streets, still discernible inside the outer wall of the town, rise rows of columns, sanctuary precincts, porticos and steps of public buildings. Round the city lie the vast burial grounds, with their varying types of burial vaults, tombs in the form of houses, hypogea, and sepulchral towers, all of which, though violated from ancient times onwards, still retain their decorations and inscriptions as well as most of the innumerable sculptures they contained.

Whole structures still remain to their full height : large sections of the main colonnade are still upright and the entablature is still supported on the pillars with their consoles; the temple of Baal, surrounded by its courtyard wall and porticos is almost intact; the sepulchral towers in which the dead mount guard along the pass leading to Homs and Damascus stand out square and sombre against the hillside, flanking the route. Crowning the mountain with its tours and redans stands the Arab castle, one of the most striking features of the landscape.

As far as the parts of the buildings which lie below the surface are concerned, excavations have shown how little they have suffered from the ravages of time, a fact accounted for by the excellent condition of the subsoil and the dryness of the climate. The freshness of the paintings inside the tombs provides an illustration. Moreover, as the ancient city is almost everywhere covered by a layer of earth 9 to 12 feet thick, even those monuments which are entirely concealed are preserved to a considerable height.

Another reason is that the town rapidly fell into decay after its destruction in 273 and never regained its former importance; buildings were seldom converted to other uses and, except for a few that later served for military purposes (such as the one now known as Diocletian's camp, or the forecourt of the temple of Baal, which was transformed into an Arab fortress in the twelfth century), the buildings were never intentionally demolished or their stones carried off.

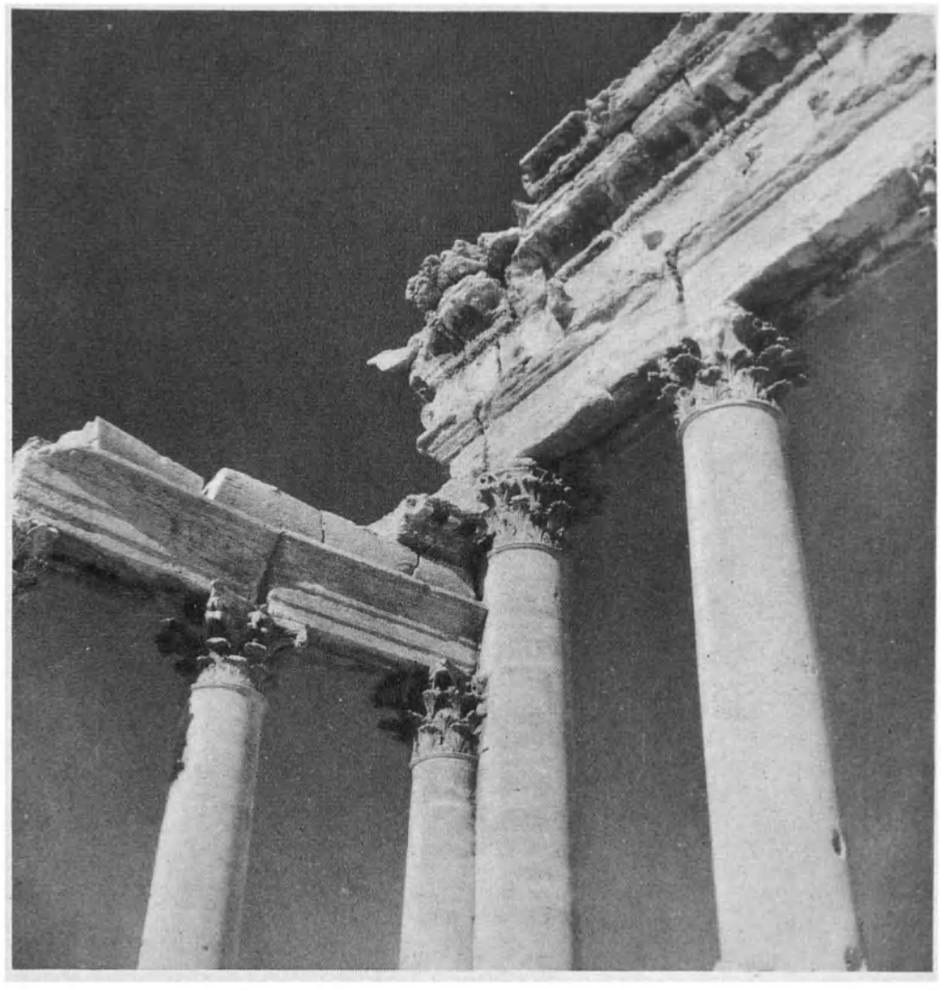
The Syrian Directorate of Antiquities has worked out an admirable and extensive scheme for uncovering the entire ruins. The clearing of the agora before the war, and that of the theatre,

quite recently, have shown what spectacular and instructive results may one day be gained from the scheme. The work is proceeding steadily but the task is immense.

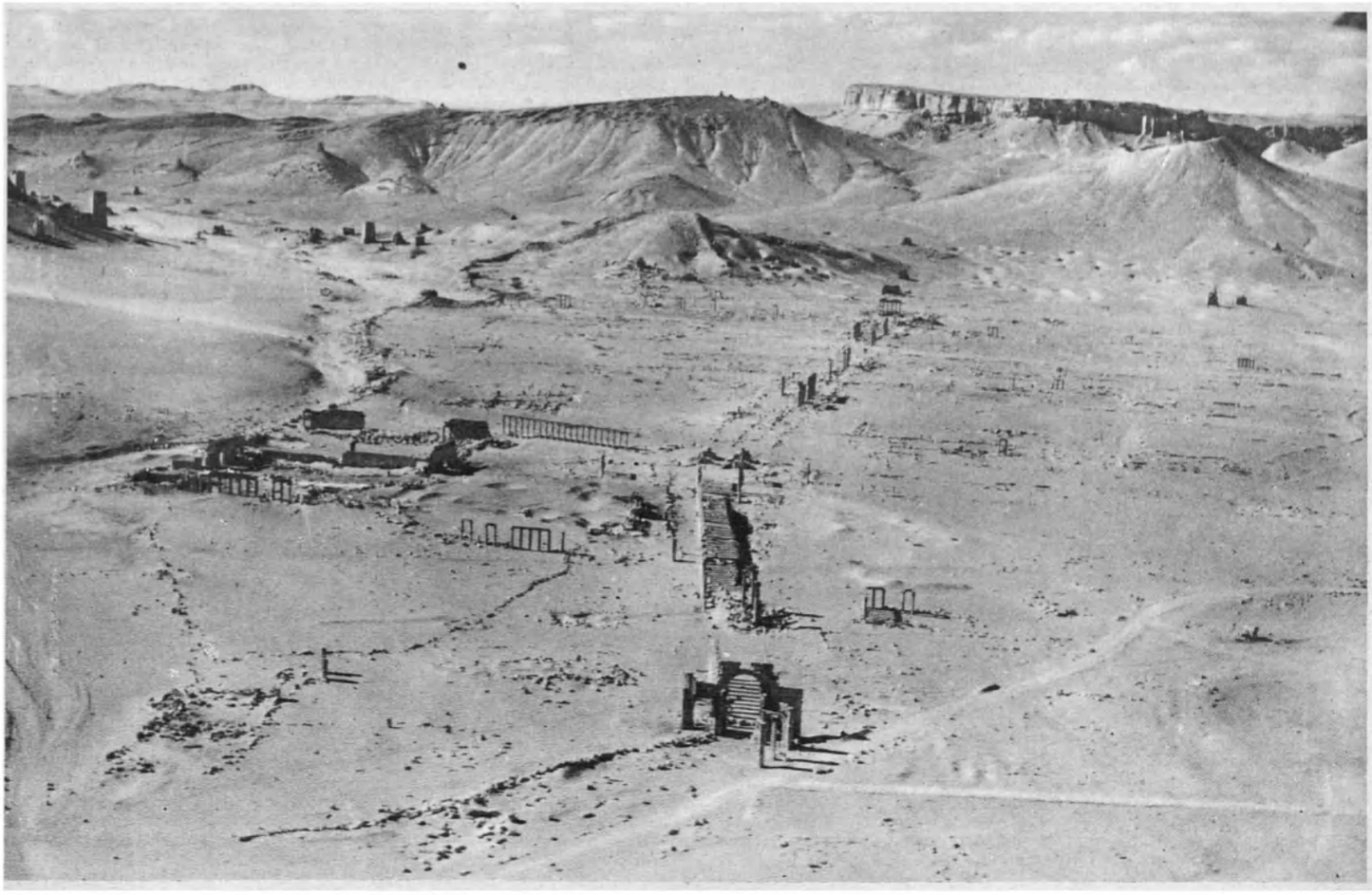
The monumental arch, the temple of Baal, the great colonnade and innumerable tombs, towers and hypogea required extensive restoration and consolidation. The removal of the decorative sculpture of the Yarhai hypogeum and its reconstruction in the Damascus Museum was a difficult undertaking, successfully accomplished. A bold plan was adopted to allow of the uncovering of Baal's sanctuary.

The modern town, whose houses filled the temple precincts, was removed and rebuilt further north, beyond the boundary of the ancient city. Now, after 20 years, the whole population agrees that the step was well justified, for the new village, with its wide airy streets, affords healthier and more convenient living conditions; this may serve as an example.

But Palmyra is not only a city; it is the natural centre of an immense region stretching from the Anti-Lebanon mountains to the Euphrates, a region whose prospects and importance are now beginning to be realized. Along the desert routes which meet and cross within it, and where they reach the river, are other sites, marking wayside centres which existed at various times in history.



1. Courtyard colonnade of Temple of Baal, Palmyra, which became an Arab fortress. **2.** Two aerial views of the striking ruins of Palmyra, once a great trading centre.



Krak des Chevaliers

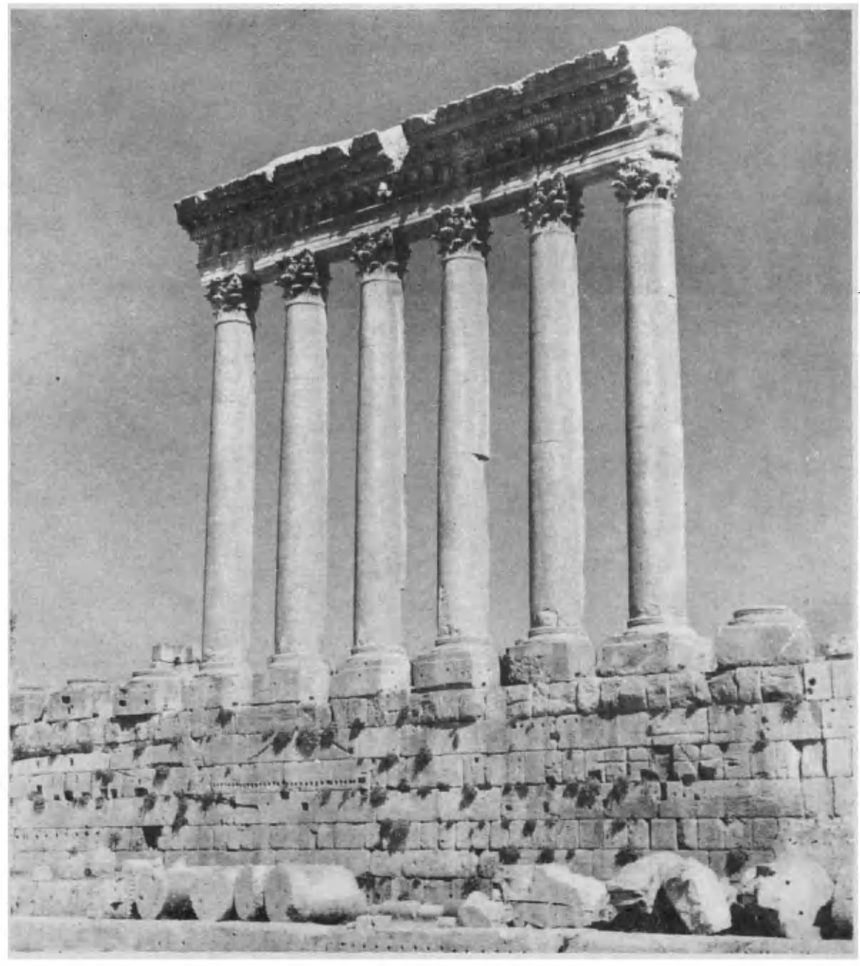
The most striking monuments in the whole Syrian region from the coast to the mountainous hinterland are the great buildings raised by the Crusaders. They bear witness to the colossal efforts made by the Western peoples over two centuries to gain a foothold on this coast, as do the opposing Arab citadels built along the valley of the river Orontes in order to hold them in check. Most famous of all the Crusaders castles is the Krak des Chevaliers perched on its lonely vantage-point among the bare mountains, standing guard over the great Homs gap. Its double line of fortifications, machicolations, underground passages and great sloping glacis contrast not only with the architecture of the great hall and its portico with their cross-ribbed vaults, pillared doorways, mullioned windows and carved ornamentation but also with the austerer architecture of the chapel. The surrender of the Knights Hospitallers to Beibars, and the fall of the Krak in 1271, heralded the collapse of the Crusaders. In 1936 the Krak was restored and an entire village built within the ramparts dislodged. But since then it has suffered considerable damage which meant rebuilding walls, repairing vaults and reconstructing a stairway. Unfortunately few people visit the Krak (less than 120 a month) since it can be reached only by jeep.

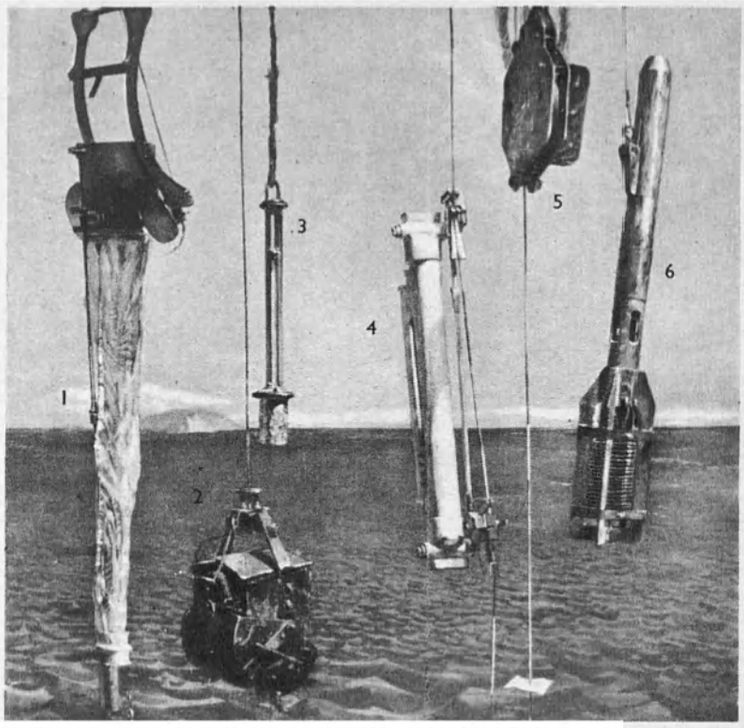
The Pillar-Hermit of Qalat Seman

Few regions have so many ruins in so small an area as does northern Syria. Of these, Qalat Seman (St. Simeon Stylites) west of Aleppo, has been termed "the greatest and grandest Christian ruin in the East" (centre photo). It grew up round the almost unbelievable figure of St Simeon, the world's first pillar-hermit. At the age of 16 Simeon retired to a monastery. Because of his excessive austerities (he once buried himself up to the chin in the monastery garden for an entire summer to discipline himself), he was expelled and became a solitary hermit in the desert. In 423 A. D. he took up his abode atop a ten-foot pillar. From this he graduated to higher and higher pillars finally mounting a 50-foot column where he remained for 27 years, without ever descending, until his death. To prevent his falling off, he had an iron collar round his neck attached to the stone by a chain, and a low railing built round the edge of his tiny perch. It was so small that he could sit or kneel on it but not lie down. Meagre food rations were brought to him daily by ladder. Twice daily he preached to the crowds below and prostrated himself over 1,000 times a day in prayer. Thus he lived on from year to year, through the bitter winter cold of north Syria and the broiling summer heat, a miracle of endurance. His fame spread at once and pilgrims flocked to Qalat Seman from the whole Christian world, even from remote Britain, to hear his wise counsel or in the hope of a miraculous cure. After his death in 459, the existing huge church was built, centred around the saint's pillar instead of the usual altar. (Photo left, shows ruins of central octagon and base of St Simion's pillar). In the valley below there grew up a large pilgrim town (Deir Seman) with hostels, public baths, churches, convents and private houses, the majestic ruins of which still remain. (Photo right, church of Deir Seman).

Baalbek

Despite the inroads of earthquakes, emperors and "collectors", the Roman temples of Baalbek in the Lebanon are among the most grandiose of the monuments of antiquity surviving today. The Byzantine rulers pulled down the altars to build a church there; the Arabs converted the temples into a fortress; and hardly more than a century ago, Lamartine carted off a full camel load of their rich treasures. The site was saved following a German archaeological expedition en 1900. The Lebanese Government began the tough job of consolidating, restoring and clearing the ruins in 1934 and this was resumed at the end of the last war. Unesco proposals for enhancing and easing access to the ruins are now also being considered. Below are the six pillars of the Temple of Jupiter, the tallest columns in the world. The substructure contains some of the largest single blocks of stone ever cut, weighing at least 1,000 tons. The largest block in the world though is in a near-by quarry still not completely cut away. It measures 60 feet in length and 17 by 24 feet in cross-section. Above right, ruins of the Arab mosque. Left, the Temple of Bacchus, whose lofty portico and interior decoration have been preserved almost intact, making it the richest Corinthian building of the Roman world to come down to us in present times.





Courtesy "Scientific American"

UP FROM THE OCEAN FLOOR comes a water sampler (right) used by oceanographers to explore the lower depths. Above, six other exploring instruments: 1) fine net to filter plankton out of water. 2) a "grab" to bring up samples showing the composition of the ocean bottom. 3) thermometer. 4) bottle for sampling water at different levels. 5) reel to measure length of cable paid out. 6) bathythermograph to record temperature and pressure.

Courtesy "Scientific Monthly"

THE UNTOLD TREASURES OF THE SEA

Geography is a Mature Science, Oceanography a Growing Infant

by Gerald Wendt

The soil and the sea are the two great resources of mankind. Both have been explored for centuries and have yielded their treasures for man's use. But man can walk on the land and cultivate it for food and clothing; he can dig holes in it to bring up fuels, minerals and building stones from beneath. Though part of the land is too dry, too cold, or too steep to have much value, most of it offers an adequate abode for man and has been inhabited for many thousands of years. Within the past century geographers have studied and mapped nearly all of it, seeking the best utilization of its resources.

Not so the sea. Its vast fluid mass offers no home, no foothold. Courage and much skill were needed by ancient Phœnicians and Polynesians to embark upon it and by Columbus to cross it. It has majestic beauty but it is not hospitable and defies permanent conquest. Its restless surface is familiar but its treasures are in the mysterious depths where no man can live. There life began and there it is still the richest on earth. As the resources of the land become exhausted by a crowding population, the unknown and unused resources of the sea become an insistent challenge to man's intelligence. The science of oceanography succeeds geography as the guide to future wealth.

Like the weather, the sea is of universal interest. It touches all countries except a very few, among them Switzerland, Austria, Czechoslovakia, Hungary, Bolivia, Paraguay, Afghanistan and Rhodesia. The island and peninsular nations—such as England, Greece, Norway, Denmark and Japan—have had the longest contact with it, both in coastline and in history.

In the Philippines, for instance, none of the 20 million people is more than 75 miles from the seashore and most of them live close to it. There are 7,100 islands with a total coastline of 10,800 miles. Their land area is about 115,000 square miles but the Philippine marine waters cover almost six times that area, or 650,000 square miles. Such nations know the sea and depend on it for food and trade. But the oceans are free except for a narrow strip near the shore. They belong to no nation and their resources and problems are essentially international.

Nearly three quarters of the earth's surface is covered by the sea. The total ocean area is 139 million square miles compared with 58 million square miles of land and less than 10 million square miles under

cultivation. Thus almost 72 percent of the life-giving sunshine falls upon and into the sea and at present is chiefly useful to man by evaporating the surface water to form clouds and rain upon the land. Most of the sunlight, penetrating into the water, keeps the ocean warm but is otherwise lost to man's use. It is mankind's greatest waste.

Unlike the land, the ocean has three accessible dimensions. It is not only wide but deep, and the depths can be reached. There are shallow waters close to the continents but the deepest areas are farther beneath the surface than the highest mountains are above it. If the earth's highest mountain, Mount Everest in the Himalayas, could be dropped into the Marianas Trench in the Pacific its peak would be more than a mile under water, for it is only 29,002 feet high while the floor of the ocean trench lies 35,640 feet down. The average depth of the ocean, the world over, is about 12,450 feet (2.38 miles).

Covering such an area to such a depth, the total amount of water in the ocean surpasses the imagination. It occupies 331 million cubic miles. While one cubic mile is a mere drop in the ocean, a cubic mile is so large that the entire human race could be packed into less than one tenth of it. Or, if a cubic mile of water were loaded into railway tank cars, each containing 10,000 gallons and 40 feet in length, it would fill 113,200,000 such cars. They would make a train 834,000 miles long. Running steadily at 40 miles an hour, the train would take two years and five months to pass any one point. Compared with man's needs and dimensions, the sea is practically infinite.

The sea is much more than water. It holds in solution enormous quantities of materials dissolved from the rocks and washed from the land by the rain and the rivers. Every cubic mile of it contains 141 million tons of common salt. There are other minerals, such as magnesium and bromine which have already been extracted commercially. It contains gold and iron in solution and can perhaps provide man with metals when the mines are exhausted.

Most important of the dissolved minerals, however, are those that are necessary to plant growth and are used by man as fertilizers for the soil. Each cubic mile contains 750 tons of nitrogen as nitrate, 225 tons of phosphorus and 1.8 million tons of potassium (potash). They are not important because they can be extracted from the sea but because they are available in the ocean waters to play their part in the luxurious growth of sea plants of all kinds.

Even more important is the fact that sea water contains in solution twenty or thirty times as much carbon dioxide as there is in the earth's atmosphere. Plants are built up from carbon dioxide and water under the energy of the sun, with the assistance of a few fertilizer minerals. The ocean has them all. It is the scene of enormous plant growth and thus of teeming animal life that feeds upon the plants.

Since plants need sunshine and the sunshine is absorbed in the upper regions of the sea, there is little or no plant growth in the dark depths. Most of it occurs near the surface. No accurate measurement is possible of the amount of growth each year but experts estimate it at about 18 tons per acre of ocean surface.

FISH AT THE BOTTOM is photographed at the great depth of 1,000 feet by an underwater television camera. Underneath the fish is its shadow. Television cameras first showed their great possibilities for gleaning information below the sea surface in 1951 when one of them identified the wreck of a British submarine, 280 feet down at the bottom of the English Channel.

Photo courtesy "Scientific American"

This is a greater average than plant production on land and, because the ocean surface is so much larger than the land surface, the total production in the ocean far exceeds that on land. It is never interrupted by droughts, storms or other natural catastrophes and is also entirely independent of what man can do to increase or decrease it. This steady, unseen production of 12,000 tons of new vegetation per square mile every year over an area of 139 million square miles is probably nature's most impressive feat.

Most of the plants thus produced are microscopic and are consumed by microscopic sea animals. The two together are called plankton and form the food of the smaller fishes, which, in turn, feed the larger ones. Some of the plankton settles to the bottom to feed the crawling life there. Eventually the plant and animal residues on the bottom form an organic deposit which is the source of future petroleum.

Meanwhile the sea supports an enormous population of swimming fishes whose number and weight are beyond estimate. This mass is certainly comparable with the 12,000 tons of vegetable plankton produced annually per square mile. Yet the amount of ocean fish caught each year is only 396 pounds per square mile or 0.6 pounds per acre.

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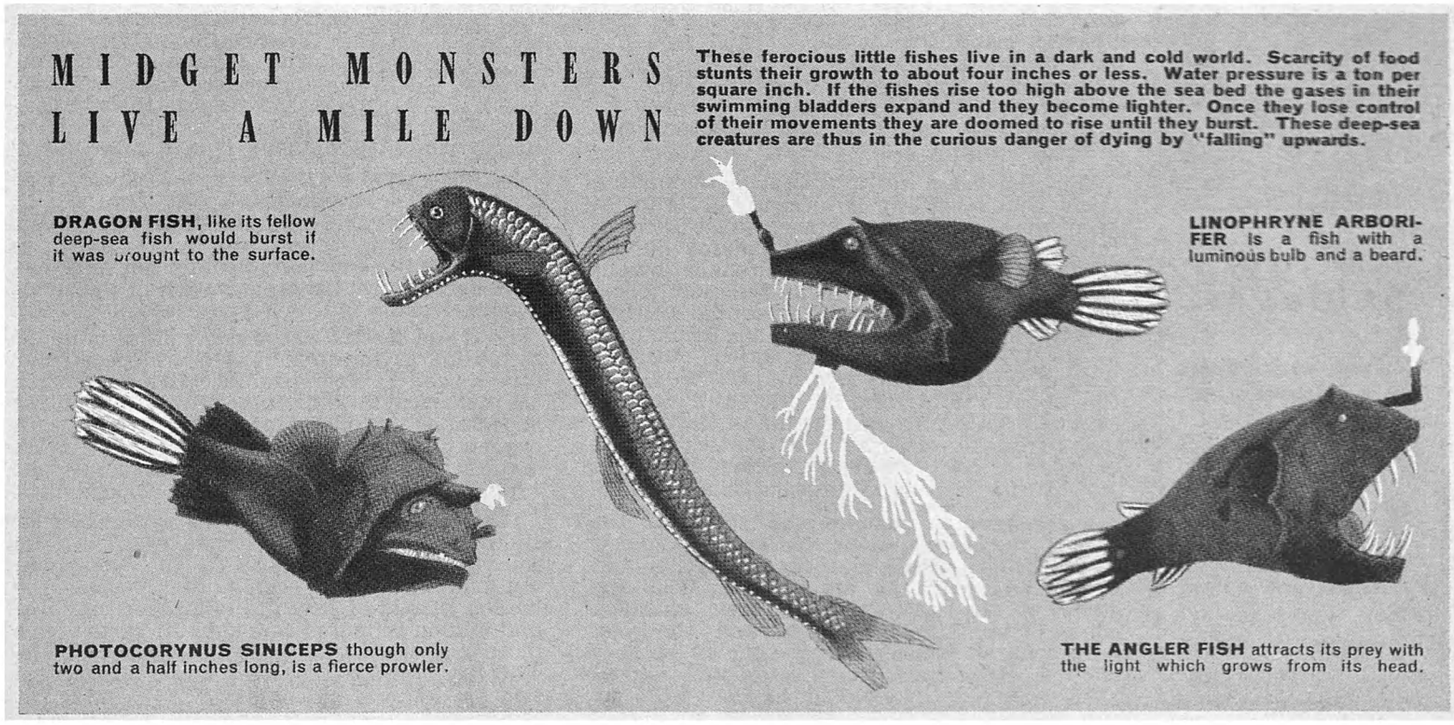
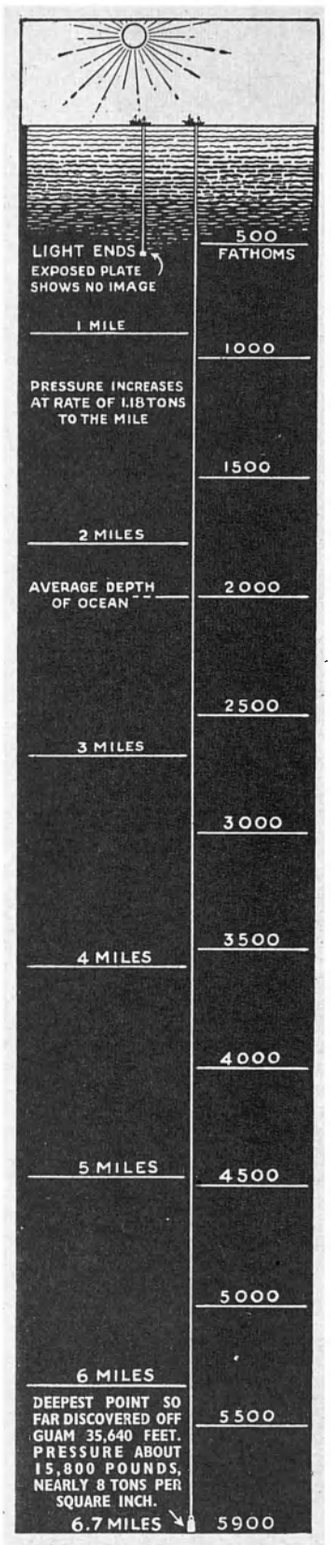




SIX MILES OF OCEAN

If you could drop Mount Everest, the world's highest mountain, into the Marianas Trench, the deepest part of the ocean, it would not reach within a mile of the surface. Note that only a thin layer at the top is lighted by rays of sun.

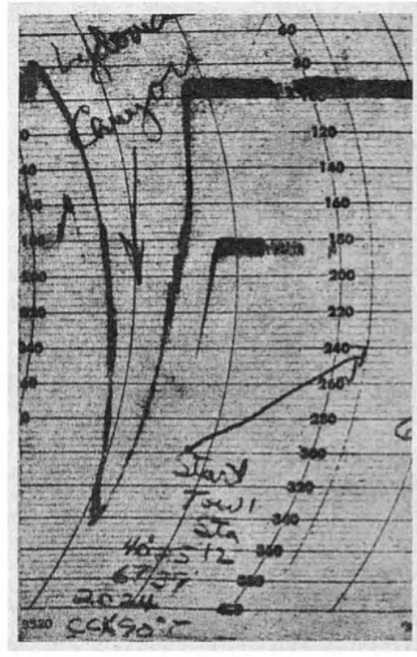
It is evident that the food resources of the sea are as yet hardly touched by man.

Nevertheless the total annual catch of seafoods the world over amounts to 25,000 million tons, not including whales which would add another ten percent. But this weight includes the shells of oysters and of crustaceans and large quantities of fish that are used for bait, oil, fish meal and fertilizer. The edible portions of the fish caught amount to about 10,000 million tons a year. As food for the earth's 2,400 million inhabitants this provides a yearly average of nine pounds per person.

But the average consumption of all foods is about 1,100 pounds per person per year; thus fish and all seafoods account for less than one percent of human nutrition. Since fish is a cheap and healthy food with 18 % protein, 5 % fat and about 500 calories per pound, it is apparent that the consumption of fish could be greatly increased with benefit to all. Thus from the standpoint of both consumption and production a precious and much needed resource laps on the shores of most nations of the earth.

The United Nations Food and Agriculture Organization (F.A.O.) asserts that the world aquatic resources are capable of furnishing man with a quantity of food many times larger than at present and that one of the chief obstacles to an increase in the fish supply is the lack of a larger demand. This, in turn, is partly because of commercial and economic factors but also is largely a result of ignorance of the nutritive value of seafoods and of prejudices and taste habits.

A great increase in the fish supply can be attained by greater mechanization of the fishing boats so that they can cover larger areas and by better methods of locating fish. But a great underlying need is better knowledge of the life-habits of fish and the interrelations between the many forms of life in the ocean, the possible destruction of predators and the cultivation of preferred species. The practical improvement of fishing is, indeed, only one aspect of research in the larger problems of oceanography.



A MIGHTY GULF in the floor of the Atlantic Ocean is the Lydonia Canyon whose profile is shown here as it was traced with a fathometer (echo sounding device) by the ***U.S.S.*** *Albatross*. Scientists of the 1947 Swedish Deep-Sea Expedition crossing the Atlantic in another *Albatross* found that the ocean floor rose and fell in curious steps on a Gargantuan scale, half a mile to several miles wide.

Marine biology has long been a fascinating study, conducted largely by many government agencies and by private laboratories such as the Oceanographic Museum founded by the Prince of Monaco and by such foundations as the Carnegie Institution at La Jolla, California and the Wood's Hole Oceanographic Institution established by the Rockefeller Foundation in the U.S.A. Deep-sea expeditions, such as that of H.M.S. *Challenger* in 1872-75 and of the Swedish *Albatross*, in 1942-48, have long explored the depths and the life in them. But the systematic exploration of the sea and its complex physics, chemistry, biology and geology is now seen as an international problem.

Oceanography includes the study of the oceans themselves, their contents and their interrelations with the rocks, sediments and shores and with the atmosphere. It is the study of the water masses, their chemical composition and movements and the vast complexity of biological organisms which they contain. It includes the effect of atmospheric changes, winds, the effect of the sun's radiation and the circulation of currents in the ocean.

It includes also the study of the ocean bottom, its geological features and history and the study of the deep sediments that have accumulated there through the ages. The study of the ocean floor is already the subject of specialized international study under the leadership of the Joint Commission on Oceanography of the International Council of Scientific Unions. This Commission has recommended the establishment of an International Deep-Sea Council for the world-wide co-ordination of these researches.

In 1952 the Indo-Pacific Fisheries Council proposed a programme of international co-operation in oceanographic studies which would establish a complete register of all laboratories and vessels engaged in such research, a file of all available data and publications, a consulting service for governments in the planning of oceanographic researches and of industrial applications, and which would co-ordinate all national programmes with the co-operation of Unesco in the fundamental oceanographical sciences and of the U.N. Food and Agriculture Organization in the application of these sciences to fisheries.

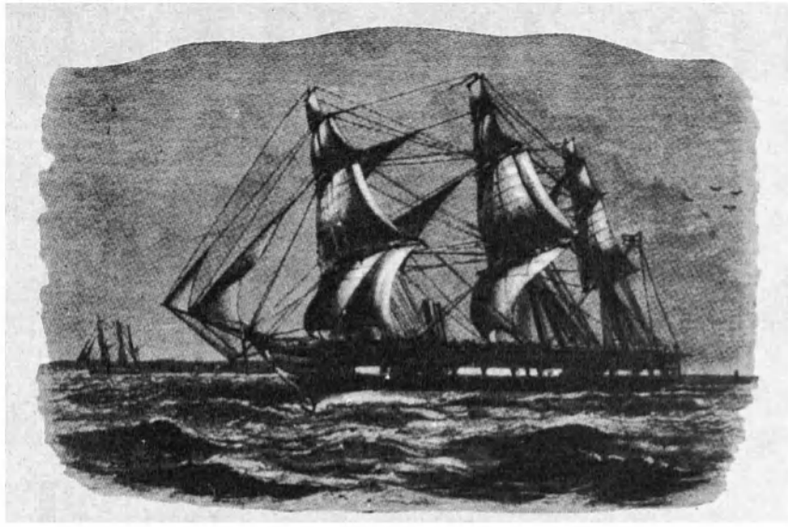
In the Indo-Pacific area many laboratories already exist for oceanographic researches. They include the Central Marine and Fisheries Research Station at Mandapan, South India, the Oceanographic Institute of Indochina at Nhatrang, the oceanographic department of the Bureau of Fisheries in the Ministry of Commerce and Agriculture at Manila, the Philippines, the Oceanographic Institute of the Fisheries Department of Singapore and The Federation, the Laboratory for the Investigation of the Sea at Djakarta, Indonesia and the Oceanographic Institute, New Caledonia.

Japan has more than a dozen organizations devoted to oceanographic research and has organized a Special Committee on Marine Resources in the Unesco Committee of the Science Council of Japan. The Japanese National Committee for Unesco in 1953 revived the publication of the Records of Oceanographic Works in Japan which World War II had interrupted.

In November, 1953, a group of experts met at Manila in conjunction with the Eighth Pacific Science Congress and under invitations issued jointly by Unesco and F.A.O. to discuss the possibilities of establishing an international oceanographic organization in the Indo-Pacific region.

Thus the earth's last great frontier is under increasing exploration. There are spectacular forays such as Professor Piccard's descent in his bathyscaph and those pleasant scouting expeditions by many amateurs armed with oxygen tanks who swim freely in shallow shore waters to study marine life or undertake archaeological treasure hunts for sunken ships.

But the real treasures of the sea lie far off shore and far beneath the waves. They are the vast quantities of food for the ever-growing human race and, even more important, the hidden secrets of how life originated a thousand million or more years ago. If earth is the mother of man, the sea is the mother of life. The earth's lesson has to a large extent been learned. Those of the sea have just begun.



THE "CHALLENGER"

ON December 21, 1872, the 2,300 ton wooden corvette H.M.S. *Challenger* sailed out of Portsmouth, England, to explore "conditions of the Deep Sea throughout all the Great Oceanic Basins". During three and a half years she sailed and steamed nearly 70,000 nautical miles around the globe, and made observations by soundings at 362 stations scattered over the 140 million square miles of the ocean floor. When she returned to England in May 1876, she had sounded the depths of every ocean except the Arctic and had laid the foundation for the modern science of oceanography.

The scientific expedition, coming only 40 years after the famous voyage of Darwin aboard the *Beagle* (1831-36) aroused considerable public attention. It proved beyond question that life existed at great depths in the sea, disproved the myth of the lost continent of Atlantis, charted the first systematic plot of ocean currents and temperatures, showed that the temperature in each zone was fairly constant in all seasons, and charted what is still today our basic map of the world under the seas.

Before the *Challenger* only a few isolated soundings had been taken of the ocean depths, and it was generally believed that nothing could live in the cold, black waters of the deep sea. Even the British biologist Edward Forbes, one of the first men to take a scientific interest in the ocean depths held the belief that no life existed below 1,500 feet. A century ago he wrote: "As we descend deeper and deeper into this region, the inhabitants become more and more modified, and fewer and fewer, indicating our approach to an abyss where life is either extinguished or exhibits but a few sparks to mark its lingering presence."

But Forbes urged more exploration of "this vast deep-sea region" to settle the question definitely, and his own pioneer work in the Aegean Sea led the way for the *Challenger* expedition. In 1818 worms were brought up by an Arctic expedition from 1,000 fathoms; in 1860, a cable in the Mediterranean bed at 1,200 fathoms was found encrusted with corals and other animals.

Then came the voyage of the *Challenger*. "From bottoms lying under miles of water", writes Rachel L. Carson in her now famous *The Sea Around Us*, "from silent deeps carpeted with red clay ooze, and from all the lightless intermediate depths, net-haul after net-haul of strange and fantastic creatures came up and were spilled out on the decks. Poring over the weird beings thus brought up for the first time into the light of day, beings no man had ever seen before, the *Challenger* scientists realized that life existed even on the deepest floor of the abyss."

The *Challenger* was fitted with everything that could be carried in the way of appliances for scientific research at the time. Its equipment included sounding instruments, water bottles, undersea thermometers, 144 miles of sounding rope and 12.5 miles of sounding wire; sinkers, nets, dredges, and "spirits of wine" for preserving specimens. A fully equipped zoological laboratory was set up on board. The Royal Society drew up a complete scheme of instructions for the voyage, captained by George Nares and led by Charles Wyville Thomson.

For a year the *Challenger* fitted with auxiliary steam power in addition to her sails, explored the Atlantic depths, crossing from the Canary Islands to the West Indies, skirting the American side as far north as Nova Scotia, then recrossing the Atlantic to the Azores. She then sailed to the Brazilian coast and crossed the southern Atlantic to the Cape of Good Hope. From there, the *Challenger* headed into the southernmost part of the Indian Ocean and was the first steamship to cross the Antarctic Circle. After reaching the ice-pack she was caught in a dense snowstorm and crashed into an iceberg (losing the jib boom and other rigging, later recovered.) The *Challenger* then proceeded to Australia, Fiji, the Philippines, Japan, China and the Sandwich Islands.

On March 23, 1875, off the Marianas Islands, the expedition made its deepest sounding—26,850 feet. With a little luck, the *Challenger* might have discovered the deepest known place in the ocean, the Marianas Trench, some 200 miles southwest of Guam. It was a second H.M.S. *Challenger* that obtained a sounding of 35,640 feet in October 1951, 200 feet deeper than the Mindanao Trench off the Philippines reported by a German cruiser in 1927.

After sailing due south to the Tropic of Capricorn, the *Challenger* expedition took an easterly course to Valparaiso, Chile, made its way into the south Atlantic again through the Straits of Magellan and ended its remarkable voyage in England on May 24, 1876.

The narrative of the expedition has been told in popular form in Moseley's: *"A Naturalist on the Challenger."* The complete account of the scientific results of the voyage was published over a period of ten years in 50 volumes, the first of which contains an interesting "Narrative of the Cruise".

WORLD HISTORY

Toning down its 'Western accent'

By Professor Marshall G. S. Hodgson, University of Chicago

DURING the past decade or so there has been an increasing awareness of a need for history of a world scope. But what goes by the name of "world history" is still essentially Western history amplified by a few unrelated chapters on other parts of the world, notably India, China and Japan. During the last 3,000 years there has been one zone, the Eastern Hemisphere, in which various lands of urbanized literate civilization have been in commercial and commonly in intellectual contact with each other. Today at least 90% of the world's population now traces its history to some segment of this zone of nations. A history of inter-regional developments among the civilizations of the Eastern Hemisphere, developments transcending cultural regions like Europe, the Middle East, India or the Confucian lands, will go far toward meeting our needs for world history. These are some of the points made by Professor Marshall G.S. Hodgson, of the University of Chicago, in an article which appeared in Journal of World History *(Vol. 1 n° 3) published by the International Commission for a History of the Scientific and Cultural Development of Mankind, part of which is published below.*

WHEN we set out to give history a world-wide perspective we find our attempts being paralysed by habitual distortions in our ideas of mankind dating from the days of Western world dominance. In Western thinking — and this thinking still dominates too greatly other parts of the world as well — the West was the centre of the world; and the world at large was to be regarded, historically most especially, in the light of its effect upon and contributions to the modern West. Is not the world now Westernized? — we have justified ourselves; not noticing that (even if this were true) there is a great difference of historical structure and perspective between even such a world and the West itself.

All too often men of other regions also have tacitly accepted the Western criterion, trying to show the supremacy of their own region by showing how much it helped to form or is worthy to alter, the West. Such an explicit orientation is now being sloughed off; but it has left innumerable traces in our thinking which do not disappear so easily.

A peculiarly important example of the results of this attitude is the concept of "the Orient". The word has meant many things; as used by historians it has come to mean, if taken generally, all those urbanized and literate countries of the Eastern Hemisphere, whether south or east of Europe, which were eventually subjected in various degrees to the West-European expansion after 1500. There is no internal point of unity among these peoples, apart from their relation to Europe, which they do not share as much with Europe itself as among one another; the term is therefore a negative one, like "foreign"; it has meaning only in a common contrast to the triumphant West.

Yet repeatedly it is taken to have a substantive content. One hears not only general remarks about the "Oriental" character, bred of the same ignorance in the West as similar general remarks about "foreigners". One hears mention of "Oriental" philosophy, or art, or even race.

Such mentions, in practice, usually refer to some particular region, rather than the formless conglomerate that would result from an attempt to lump the greater part of civilized man together in a single cultural pattern. But the more inclusive expectations they foster are nevertheless often taken seriously — often even by "Orientals" themselves; it is not rare for a native of Egypt or some equally Mediterranean country to take the credit for the best lives of India on the one hand and China or Japan on the other over three thousand years, as proof of "Oriental" superiority over the materialistic modern West.

THE root fallacy is to take "Orient" and "Occident" for two equal halves of the world. A Mercator projection map of the world, which frankly exaggerates the Western countries in comparison to more southerly lands like India, may encourage this. (One wonders how much less tenacious the conception would be if mapmakers could be persuaded to drop that mischievous projection altogether!) But the new global maps, as well as the briefest study of linguistic and historical variation, will remind us that the West is historically simply one among several regions in the Eastern Hemisphere, each of the same order as itself in size, populousness, and cultural wealth.

The elimination of catch-all categories like "Orient" — and the very similar "Asia" — will automatically rid us of many absurdities in daily conversation (at least in the United States). For instance, that one or another gathering is truly world-wide because it has members from "all the continents" — so many from North America, so many from South America, so many from Europe, a couple from Africa, and even one or two from "Asia".

Or the fatuous remark of a popular "world" historian, that Europe progressed and "Asia" did not, because Europe's rivers flowed from the heart of the continent out to the sea, whereas "Asia" had no such rivers. The Narbadda is roughly as long as the Rhine, and the Ganges as the Danube, and waters lands as diverse.

BUT even in serious history such absurdities take their toll. It is very hard to persuade a historian of "world literature" that it is misleading to give a chapter to each of the little literatures of Europe, and then one chapter to that of "India" — as if he shared the supposition so often found among the uninformed that one should learn "Indian" before

going to live there. If it is worthwhile treating *world* literature at all, then Tamil and Bengali and Maratha should have chapters as distinct from Sanskrit as are the Italian and German from the Latin; if this should show up a cultural poverty in Bengali or Maratha, that would already be a point gained.

But in any case, for the purposes of comparison and of perspective, it would reflect the position of India as an understandably complex sub-continent — not as one incomprehensibly vast "country" in "Asia" roughly answering to Italy in the more comprehensible Europe. Throughout the serious work of scholars we find "international" affairs in Europe treated as matters of *world* import, while relations between parts of Africa or even between India and China come under the head of *regional* studies; a war among Western powers is a "world" war, while one between China and Japan is "localized"; a new language based on all European tongues claims to be a "world" language, while a threatened alliance of Russia, China, and India could be referred to as merely an "Asian bloc".

A MORE explicit cultivation of interregional history can be vitally important to our historical understanding generally. For a particular historical form of this Westward distortion of our view of mankind has tended to vitiate most of our popular conceptions of general history. The most significant error Westerners have made lies not in ascribing to themselves too much glory or virtue in any particular comparisons with other peoples. More dangerous has been the West's practice of reading the very structure of history in a distorted fashion, for this has been carried over unconsciously even by non-Westerners.

Judging all the world by its effect on the West, Western history used to set about tracing civilization from its earliest times in Egypt and Babylon only up to a point — only so long as these lands remained the nearest direct antecedents of the modern West. We ceased tracing civilization in those countries almost as soon as Greece and Rome came to have a literate history, concentrating on each of them, in turn; ignoring each time any further history in the lands farther east (except when forced to pay attention, by their role in a more westerly story). So soon as northwestern Europe came to have an independent story, all lands east of the Adriatic dropped from sight, and the very words we used suggested that henceforth the West was the world.

Something like this might have been legitimate if done consciously; but generally no recognition was made that the focus of our vision had been shifted in the process. The whole story commonly ran as if (as Westerners have indeed actually believed) civilization itself had been moving steadily west. From this false impression of the story's continuity arose a number of illusions, which continue to have their effects after the grosser aspects of the above process have been abandoned.

FIRST, it came to be supposed that after the early years the more eastern nations had in fact little significant history. This impression was early extended from Egypt and Iraq to other lands; reinforced by a number of accidents, including the habits of Indians and Chinese of glorifying and exaggerating the antiquity of their institutions. A variant of the same notion, encouraged by the rapid rate of change in the modern West, and by illusions of distance, was that of the static, changeless East.

Second, a different and more persistent illusion produced by the pattern was that of a certain historical discontinuity — recurrent degeneration, followed by a new start. Not that such degeneration has never in fact happened; but in the westward historical pattern the contrast between one age and another was confused and compounded with that between places, as our attention moved west.

This occurred especially when the focus was shifted from the Mediterranean Roman Empire, in which Rome was a *western* outpost from the cultural and even economic point of view, to Latin Christendom of the Western Middle Ages, in which Rome was a *southeastern* outpost on the very edge of Greek and Muslim territory. A relative decline intervened in the Imperial lands between the age of the Antonines and that of Justinian and the Hagia Sophia; the shift of attention meanwhile from the seaways of the Mediterranean to the forests of Germany and Gaul magnified this decline into the fall of the Roman Empire and the Dark Age of civilization !

THE grosser misconceptions which have accompanied the Westward pattern of history are now less inclined to judge the fate of Greek culture by its eclipse in Merovingian Gaul. But the illusions which it fostered were a strong influence making possible the Nineteenth-Century theories of history which still tend to hold sway. The idea of inevitable and triumphant progress probably owes something to the practice of watching only those nations, as civilization spread, which were just taking on its graces; a partly borrowed progress always seems fast.

Those conceptions of history which reduce it to stages or cycles owe far more to these illusions. The famous fall of the Roman Empire seems to be the kernel from which such conceptions have grown. Spengler decried a Westcentred history, yet accepted the limitations imposed by the Westward pattern, allowing no history to India or China in the last two millennia. Toynbee is anxious to recognize the continuing evolution of the non-Western nations; yet he seems to have used the "Fall of Rome" as his starting point, and hence involved himself in a system of distinct societies, definitively rising and falling, which naturally bristles with fundamental anomalies. Thus the distortion has infected his work, even though he guarded explicitly against the illusion of the "static East", as well as escaping the imposing list of those whose data suffers a displacement in *space* which they treat as if it were a change merely in *time*.

Perhaps a more significant evidence of the pervasive effect of the Westward distortion in what we have called world history, is its effect upon so great a historical analysis as the Marxist. Like others, the Marxists have envisaged stages of evolution, appearing in a predictable order. Thus the slavery "stage" of Carolingian Gaul.

BUT the picture becomes awkwardly complicated if the Syrian or Anatolian provinces are focussed on, rather than Gaul: for the Abbasid and Byzantine societies represent alternative sequels to the Roman. Accordingly, as the historical vision of Victorian Europe has widened, Marxism has been faced with the need to patch up its theory, and possibly to revise it thoroughly, allowing for more varied elements in and outcomes of the dialectical process; it is my impression Marxists have not yet adequately met the problem.

Some will have the impression that in advocating an interregional history of the Eastern Hemisphere, I am advocating not world-*oriented* history, but just *Oriental* history. Not quite: a history of "Asia" without Europe could conceivably resemble a history of Western art or letters without France. (Yet I will confess that just as a history of Europe without France would better deserve the name of European history than one of France without Europe, so a history of "Asia" without the West could be more readily called a world history, than the reverse).

The point is that *from a world-historical point of view*, what is important is not European history in itself, however important that be for us all; but its role in interregional history This role has latterly been momentous; but our very concentration on internal Western history has commonly obscured our view of the West as one dynamic region among others in the wider world.

KALINGA

An Historic Indian Name Revived by A Science Prize

The Kalinga Prize for distinguished popular writing in science is awarded annually by Unesco on the basis of a grant by Mr. B. Patnaik (right), Indian industrialist from the State of Orissa. Centuries ago Orissa was the heart of the great Kalinga empire of King Asoka. The four lions of Asoka (left) are today the emblem of the Republic of India.

THE name of Kalinga achieved a place in history more than twenty two and a half centuries ago. In 500 B.C. India was a continent of small warring states, of rigorous castes and of conflicting religions. Buddha had died at the age of 80 in the year 544 B.C. That great spiritual leader attacked the superstitions and ceremonials of his day, denounced the metaphysical outlook, miracles, revelations and dealings with the supernatural. His appeal, strangely modern, was to logic, reason and experience; his emphasis was on ethics and his method was one of psychological analysis. For more than two hundred years, the Buddhist faith was merely one of many, competing quietly for the attention of the millions of people living in India.

Then in 323 B.C., Alexander the Great, conqueror of what the West called the whole known world, died at Babylon. Seleucus, the general who inherited Alexander's eastern empire, stretching from Asia Minor through Persia to Afghanistan, was forced to give up for ever the effort to conquer the East. He was defeated by the ruler of northwest India, who was named Chandragupta Maurya.

Inspired by Alexander's vast conquests, Chandragupta turned his attention eastward and within two years had won the capital of north India, Pataliputra, which today is called Patna. Soon the Maurya empire covered the whole of India from the Arabian Sea to the Bay of Bengal. It was the first large centralized government that India had ever had.

Forty-eight years later, in 273 B.C., the young grandson of Chandragupta, named Asoka, inherited the empire. Fired with his grandfather's ambition, he set out to conquer what remained of India. His one great objective was the state of Kalinga which extended along the long diagonal strip of coastline from near the present Calcutta to the present Madras and inland for 500 miles. The Kalingans resisted obstinately. In the clash a hundred thousand persons were slain, many times that number died and one hundred and fifty thousand were carried off as captives. India was united except for the small southern tip that is the present Travancore, Cochin and Tamil Nad.

Asoka's empire was not only the greatest of all Indian history; it was also the turning point of that history. The slaughter in Kalinga so revulsed the conquering emperor, moved him to such sorrow and regret, that he swore never to tolerate any more killing or captivity. He never moved against the southern states though he could have taken them easily. "'True conquest" he said "consists of the conquest of men's hearts by the Law of Duty and Piety. Should anyone do him wrong, that too must be borne with by His Sacred Majesty. For His Sacred Majesty desires that all animate beings should have security, self-control, peace of mind and joyousness".

This powerful emperor became a Buddhist and was himself chiefly responsible for the spread of that gentle religion through India and through the whole of the Kalinga kingdom which extended far into the Malay States, Ceylon and Indonesia. By his influence, Buddhism spread into Nepal, Tibet, China and Mongolia. Yet Asoka was tolerant of all religious sects and generous to them. He was responsible also for the growth of vegetarianism, abstention from alcoholic drinks and

(Continued on page 28)

1952

Louis de Broglie

Professor Louis de Broglie, Nobel Prize winner and Permanent Secretary of the Section of Mathematical Sciences of the French Academy of Science; first winner of the Kalinga prize, 1952, nominated by the Institut de France. Celebrated for his research and findings in wave mechanics, Professor de Broglie has also written many popular books, including : *Matière et Lumière* (Matter and Light), *Physique et Microphysique* (Physics and Microphysics) and *Savants et Découvertes* (Scientists and Discoveries).

1953

Julian Huxley

Dr. Julian Huxley, of London, first Director-General of Unesco 1946-1948; winner of the Kalinga award for 1953, nominated by the Royal Society of Great Britain and by the Institut de France. Scientific subjects have been interpreted by Dr. Huxley through books, articles, lectures, radio and films. His many works include : *The Individual in the Animal Kingdom ; The Stream of Life ; Essays in Popular Science ; Scientific Research and Social Needs ,Bird Watching and Bird Behaviour ; Evolution and Ethics.*

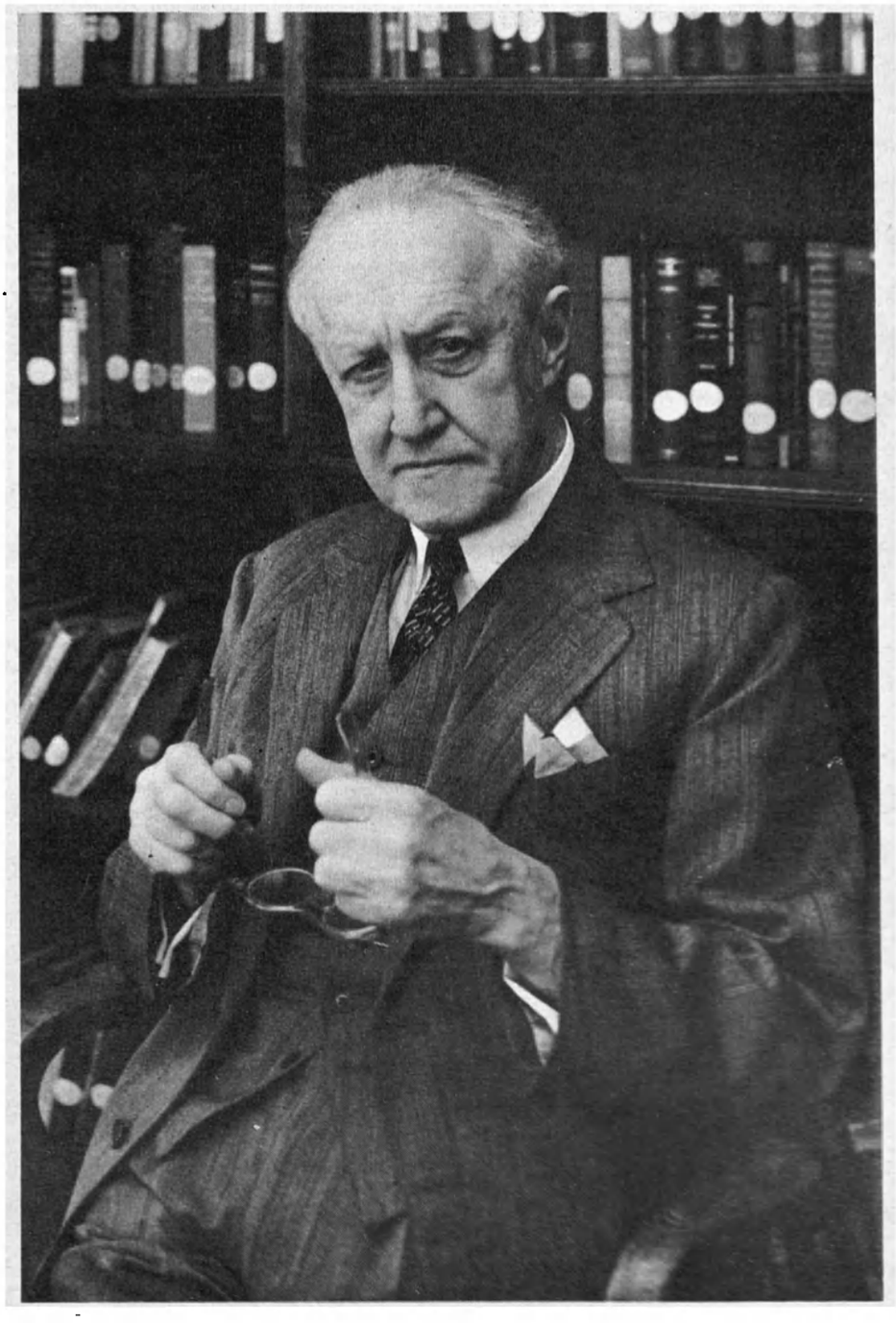
1954

Waldemar Kaempffert

Mr. Waldemar Kaempffert, science editor of the New York Times since 1927, has been awarded the 1954 Kalinga Prize for his distinguished career in science writing. Mr. Kaempffert, who was nominated for the prize by the British Association of Science Writers, has written, during nearly 30 years, a two-column Sunday feature entitled "Science in Review". He has also written many editorials and reviews of scientific books for the Times and a large number of special articles in American weekly and monthly magazines. His books include : *The New Art of Flying, The ABC of Radio, Invention and Society Today and Tomorrow, Science Today and Tomorrow (2nd Series), Explorations in Science.*

Mr. Kaempffert was born in New York City and graduated from the College of the City of New York. He later received a law degree from the New York University and an honorary degree of Doctor of Science from Clarkson Institute of Technology. He began his career as a patent attorney but early became managing-editor of the *Scientific American* and later editor of *Popular Science Monthly*. He left the New York Times in 1928 to become Director of the Museum of Science and Industry in Chicago but returned to the Times in 1931. He was one of the organizers of the National Association of Science Writers and has had a profound influence both on the quality of science reporting in the U.S. and on the extensive employment of specialized science writers by American newspapers.

"Current Biography" says of Mr. Kaempffert that "no one has done more to bridge the gap between the abstract hypotheses of the laboratory and the mind of the common man". For more than half a century he has devoted himself to the popular interpretation of scientific ideas, always in simplified language, often in dramatized form. He has always stressed his conviction that the advances of scientific research inevitably bring broad social consequences and that only an educated democratic public can wisely adjust to them.



the prohibition of all animal sacrifices. India assumed almost its modern aspect at the time of Asoka more than twenty two centuries ago.

H.G. Wells, in his Outline of History, says "Amidst the tens of thousands of names of monarchs that crowd the columns of history... the name of Asoka shines almost alone, a star... More living men cherish his memory today than have ever heard the names of Constantine or Charlemagne".

Kalinga, which was the heart of Asoka's empire, is the modern state of Orissa in independent India. The four Lions of Asoka are the emblem of the present Indian government. But Orissa, through the vicissitudes of history, is now a relatively small state, indeed a backward one. Yet it has perhaps the richest concentration of valuable minerals in all the world, and the ferment which came with independence is now developing that state to a prominent position.

The business leaders who are building steel mills and industries there and are changing the ancient city of Cuttack into a modern capital, have founded the Kalinga Foundation Trust, based on the entire profits of some of the new and major industries. It is dedicated to scientific, industrial and cultural research and to the development of the state of Orissa. The Chairman of this Trust is the Honorable Dr. H. Mahatab, Minister for Commerce and Industry.

One of the directors is a young executive, a distinguished aviator during World War II, and friend of Premier Nehru, Mr. B. Patnaik. In 1951 he took the unprecedented step of offering to Unesco an annual grant from the Kalinga Trust Fund to establish a prize for effective and distinguished science writing.

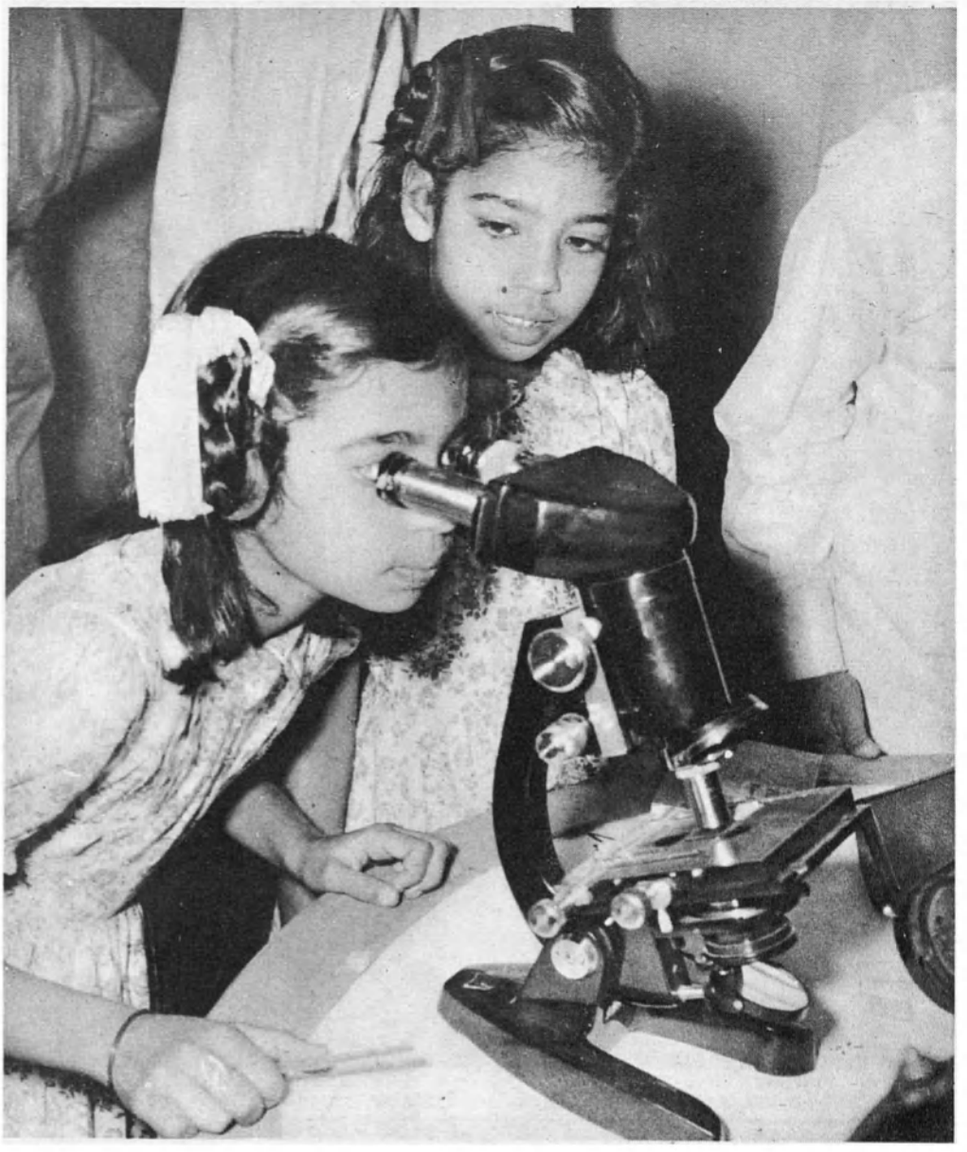
In doing so he wrote: "It is only with the aid of science that we hope to complete our task and it is to science that we turn with anxiety and hope for a solution of our stupendous problems. I am particularly convinced of the necessity of making the great masses aware of the methods and achievements of scientific research, and to make them understand, in a form which they can assimilate, the impact of science on our daily behaviour.

To build a nation, to achieve common welfare, mutual respect and understanding is, as the Emperor Asoka wrote, difficult without great zeal. While doing everything possible to develop India's strength and industrial resources, Mr. Patnaik said "I wish to attract world attention to this part of the world, indeed to this part of the country, and wish very much that the great men of science would help in focusing world attention on this place with the object of revitalizing the great mass of people."

This outstanding ambition on the part of one of the young pioneers of new India is now being realized through the visits to India of the distinguished interpreters and teachers of science who have received the Kalinga prize. This year, Dr. Julian Huxley, grandson of the great Thomas Huxley and the first Director-General of Unesco, spent nearly three months in India as winner of Unesco's Kalinga prize and as an informal ambassador from the scientific world.

In 1955, the third prize winner, a great public educator through books, magazines and the pervasive columns of the New York Times, Waldemar Kaempffert, dean of American science writers, will also visit India as prize winner. In future years the effects of these visits will be visible and the accounts that they write of their visits to India will reveal to the world what independence, high ethical principles and the best of modern science have done for the ancient Kalinga Empire and the whole realm of Asoka.

SCIENCE MAKES SENSE even to young children when it is explained in simple, everyday terms. It was to give recognition and encouragement to the type of writing which brings scientific progress into clear focus for the average person that the Kalinga Prize was established. Another effective medium for popularizing science is the travelling exhibition. Here, two young Indians take their first look into a microscope at a Unesco Exhibition, "Our Senses and the Knowledge of the World", which has recently been touring their country.



Language barriers

THE great fund of knowledge acquired by science in past decades, steadily increased by modern research, becomes a resource for humanity and a means of improving the conditions of life only when it reaches the public, is understood and put to use. Yet science becomes ever more specialized and more remote from common life, with its own technical languages and disciplines. Although the knowledge is essentially international, the enormous cost of modern laboratories and of organized research campaigns tends to confine the results to the wealthier nations. A concerted international effort is needed to make the new knowledge available to all peoples across the barriers of geography, language and ignorance.

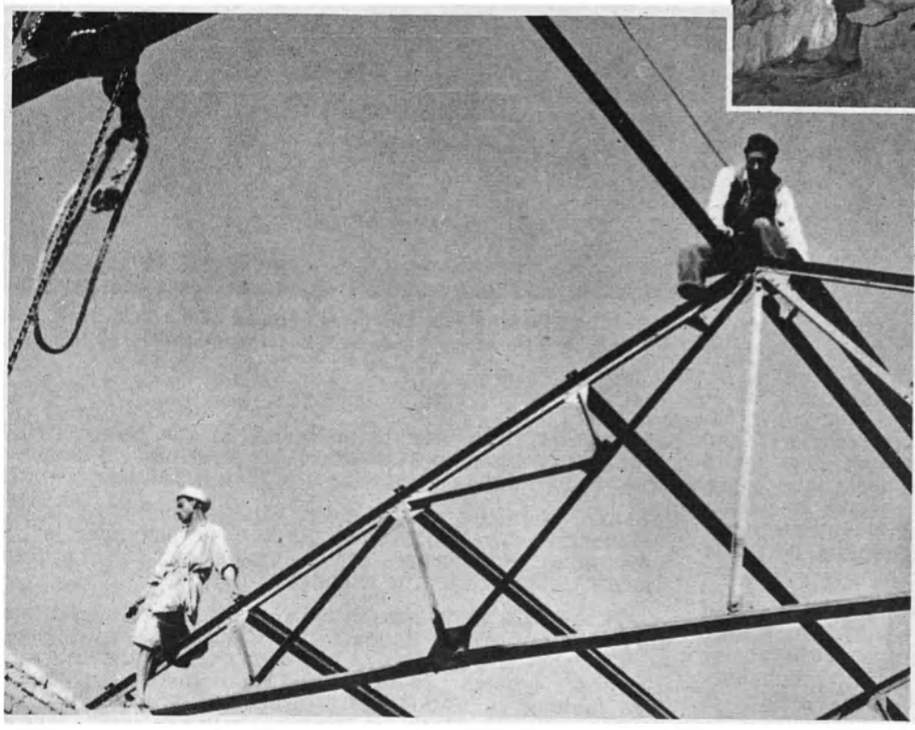
The dissemination of science is therefore one of Unesco's vital tasks, through its own publications like *The Courier, Unesco Features*, the *World Review* and *Impact of Science on Society*. Every possible assistance is also extended to the established science writers of the world and especially to their associations.

To give public recognition to the new profession of science writing, Unesco in 1952 established the Kalinga prize. The winner of the prize is invited to spend a month or more in India, speaking on the progress of science in his country and its consequences to the world, and studying Indian science at scientific institutions and universities for use in his future writing.

Nominations for the prize are invited annually by Unesco from the 18 national Associations for the Advancement of Science and from the ten existing national Associations of Science Writers.

From Afghanistan to the Banks of the Nile...

A DRAMATIC CHANGE is taking place in the Middle East today as countries adopt modern techniques to attack the roots of ignorance and poverty. Photos show a technical training centre under construction in Iraq and a village audience attending an evening class at a " cinema school " in Egypt.



GREEN LIGHT for EDUCATION

by Georges Fradier

AFTER a 10,000 mile journey through the Middle East where I toured Unesco's technical assistance missions, I frankly hesitate to use the expression "Middle East" at all. Most of us have the curious notion that it is a homogeneous region where all the countries are more or less alike, with the same Arabs and camels, deserts and palm trees, and an almost equal degree of illiteracy, poverty, and disease.

Except for the fact that the Muslim religion has been an important factor in the development of the region as a whole, there is really little in common between Afghanistan and its mountain solitudes and Egypt with its teeming Nile Valley; between Iraq and its vast open plains and the Lebanon with its narrow constricted terraces; between ancient Iran and the newly created or re-created nation of Libya.

All of these countries are today receiving technical assistance from the United Nations and are seeking to adopt modern technological skills and train new technicians. This doesn't mean though, as some people think too, that they have no technical skill.

Iran, for example, has so many skilled craftsmen and their workmanship is of such superb quality that it made me think of the great craftsmen's Guilds of Medieval times. Vocational training—one of the high points of modern technical assistance—is nothing new in this country where so many young people are learning to engrave on copper and silver, embroider leather, paint on ivory and produce magnificent in-laid work in mother-of-pearl. To the master mason laying his sun-dried bricks to the rhythm of a song, illiteracy, I thought, was undoubtedly a handicap in many ways but it certainly had not prevented him from constructing the perfect vaults and arches I saw.

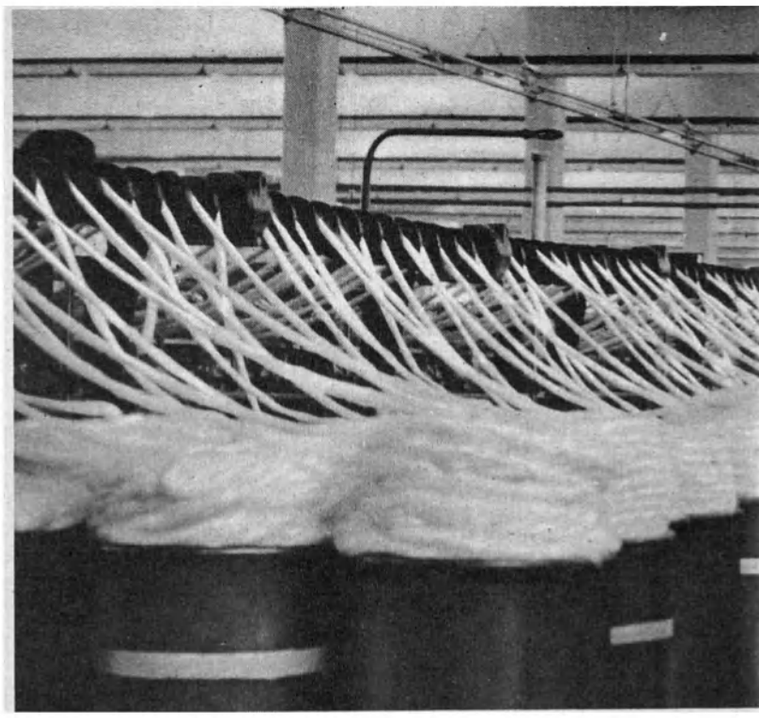
I marvelled at the "ganat" and the "foggara"—the extraordinary system of underground waterways—which generation after generation of specialist workers has maintained and extended for the past 5,000 years in Persia and Syria. The shafts follow underground water courses to sources in the mountains sometimes as much as 30 miles distant. For centuries, the workmen digging these shafts have taken their bearings with a primitive form of compass which probably ante-dates the marine compass by several hundreds of years.

In all countries, farmers are always looking for better ways to cultivate their land. But there is probably not very much the West can teach the Syrian cotton producer, or the vine grower of the Lebanon, or the Iraqi farmer I saw whose palm groves were so carefully cultivated they looked like gardens. As for the peasants of the Nile valley, they already manage to produce three crops each year from every acre of land despite their primitive implements.

I know that it has been pointed out time and again that traditional skills have not prevented these countries from falling behind others, often to an alarming degree. Nor have they solved the major economic and social problems which plague them, and in fact they have helped to intensify them. Today, however, these traditional skills do form a solid foundation for the important changes which are taking place throughout the Middle East.

One thing struck me above everything else. The apathy and resignation which was said to be widespread among the people of the Middle East is completely gone today, particularly amongst the younger generation. Everywhere the battle has been joined against poverty, against inequality, and, more precisely, against their deep basic causes. Each nation, without exception, has its plan for modernization and re-equipment. Not all schemes for improvement are of equal scope of course, nor are the funds allotted to them of equal

'our future depends on our schools'



NEW FACTORIES like this modern cotton mill in Damascus, Syria, are springing up all over the Middle East, under national plans for modernization.

importance, but everywhere new land is being conquered for cultivation, new industries are springing up, and new roads and hospitals, new laboratories and new schools are being built. Sweeping land reforms are taking place alongside significant administrative changes and amazing improvements in the social structure. Everywhere the "unchanging East" is changing.

This desire for progress, for new techniques and new ideas, has seized not only statesmen and other top-level leaders but every section of the population in the Middle East. Today, from Afghanistan to the banks of the Nile, the common slogan is "Our future depends on our schools", and the green light is being given to educational improvement.

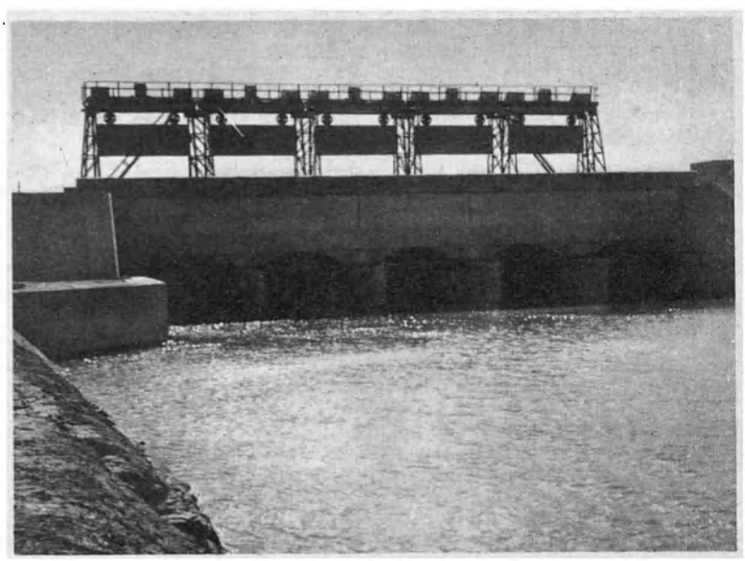
In the past ten years literally thousands of new schools have been built in the countries of the Middle East. Primary schools, destined first for those regions where hardly any existed before; secondary and technical schools, industrial training centres; universities; engineering institutes as well as new libraries and laboratories have been created. Education, these countries have discovered, can no longer remain the slow percolating process of the past, starting at the top social stratum and only rarely getting down to the broad mass at the base. Today the ordinary people who need education most can no longer afford to wait. They want education at all levels and they want it *now*.

Some countries have given first priority to expanding secondary education, others to the development of higher education. But nowhere are the funds used for one branch of learning obtained at the expense of another.

Afghanistan has launched a vigorous campaign against illiteracy, has revised its teacher training and recruiting methods, and in the past few years has also opened a number of new secondary schools. In 1950, the Afghan Institute of Technology was founded in Kabul, the capital, and it has now graduated civil and electrical engineers, mining and automobile technicians. This year courses are open for civil aviation technicians too.

Iran's problems are different. It can be proud of its secondary schools, engineering colleges and its fine university, but it is handicapped by a lack of skilled supervisors and foremen to man its industries. The traditional methods of the copper engraver's shop or the goldsmith's workroom cannot be applied in operating a mine, a seaport, a railroad or an oil refinery.

NEW LIFE is coming to parched Middle East lands through large scale irrigation schemes which will eventually provide millions of acres of new cultivable ground in former deserts.



NEW KNOWLEDGE is being gained here by Iraq's future science teachers in the spacious laboratories of Baghdad's College of Arts and Sciences. Three years ago Baghdad had no laboratories.

NEW TECHNIQUES are being taught here to apprentice metal workers in Iraq which plans to train enough specialists to staff all its growing factories.

So today Iran is giving technical education the biggest green light. All children (aged 11 to 13) in the last two classes of primary school will henceforth spend 50 per cent of their time on manual work—at work benches in city schools, at school farms in the villages. Each rural school will have its own fields for cultivation and experimentation and special watering systems for market gardens. Each city school will have its workshop complete with tools and equipment.

Within the next five years some 3,000 of these new classes will be giving practical instruction to over 90,000 children. Iran's revolutionary programme, to cost about 300 million *rials* (about $65,000,000), is one which many technically advanced countries might well envy today.

In the Lebanon educators are busily revising the school textbooks using scientifically exact criteria, and are now applying psychological tests to teacher trainees and primary and secondary school children in order to select better qualified teachers and provide vocational guidance for young people.

Since this work began, Lebanese industrial leaders have adopted similar methods in recruiting personnel, and government services are contemplating doing likewise. This is current practice in the most modernized countries but many people are quite unaware of how up-to-date and modern the Lebanon really is since it is in the "Middle East", and they have heard only of its ancient past and its ruins of Byblos, Tyre and Baalbek (see page 29).

This is equally true of Syria, which is known mostly for its magnificent architecture of antiquity and its picturesque villages. But Syria is also a country of new factories, new dams and new schools. Since 1946, some 337 primary and 48 secondary schools have been built, new colleges have been founded (Faculties of Letters, Science, Engineering, Education in Damascus and Aleppo) and building is still going on. Within the past seven years this tiny nation of three million inhabitants has ended the teacher shortage in primary, secondary and vocational schools. The next goal is to train enough qualified teachers in higher technology and advanced science.

Baghdad, the capital of Iraq, is a city whose name once ranked high in the history of science. "It will once again become a great centre of science" say the people of Iraq. A few years ago the idea would have seemed simply absurd. Baghdad had no laboratories, no science faculty, not even a scientific library. Iraq's chemists, physicists and biologists are usually graduates of British, American or German universities.

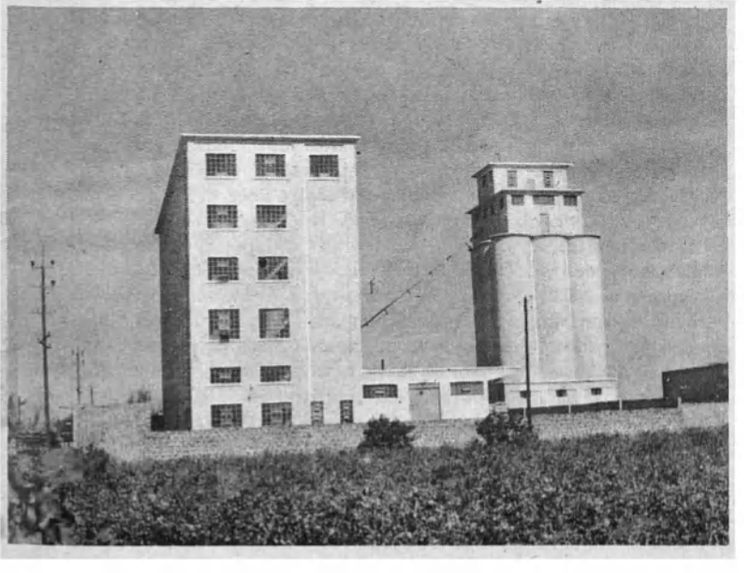
Today, students who want to study science at college are no longer obliged to go abroad. Baghdad now has an excellent school of engineering, a medical school, and a newly created College of Arts and Sciences which will ultimately form part of the future University of Iraq. The departments of chemistry, physics and mathematics are only three years old but the standards and quality of instruction are already on a par with other long-established college faculties in other countries.

"We've started from scratch", one professor told me, "but now we're in full swing". As I visited the spacious laboratories, and saw how fully equipped they were, with students in white blouses busy working over Bunsen burners, test tubes, scales, microscopes and other apparatus installed on long tile-covered benches, I could not believe that only three years before none of this had existed.

Egypt has not had the same predicament of creating a higher educational system overnight. Its very modern universities in Cairo and Alexandria attract students from many countries, and the celebrated El Azhar University, once restricted to theological teaching, is now a new centre of modern learning.

Today Egypt is expanding technical education to meet the expected acceleration of industrial development. Training is

NEW SKYLINE in the countryside at Homs, Syria, is made by silhouette of a newly built, electrically powered grain mill.



GREEN LIGHT FOR EDUCATION

(Continued)

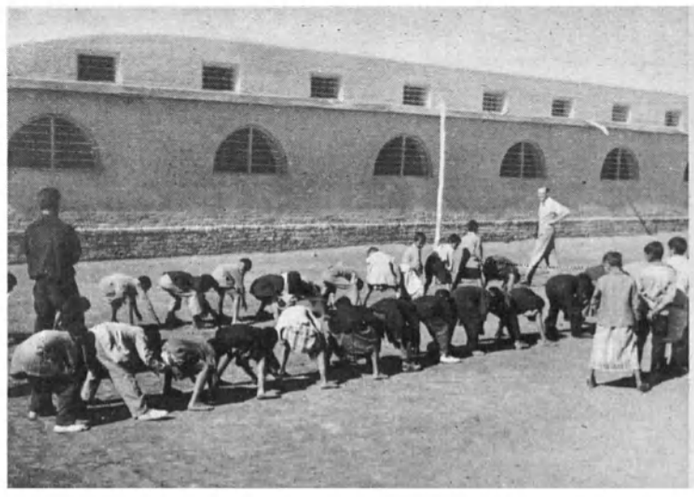
being geared to *research* in the sciences, and particularly research in industrial chemistry. But for the man in the street in Egypt, "scientific research" means the Desert Institute at Heliopolis, north of Cairo. When the Institute was founded in 1951 it was chiefly a museum of natural history of the desert. Now it is becoming the national centre for specialized research on soil, climate, desert flora and fauna, desert chemistry and geology.

"More than any other people", one scientist told me, "we Egyptians are influenced by the desert. Shut in on two sides, our great Nile flows in reality like a trickle between two immense deserts. The lands watered by the Nile are among the most fertile in the world, but only a thin green strip of land can be irrigated despite the water stored up by our huge Aswan barrage." The Nile Delta supports a population of 17 million fellahin so crowded together that the density is 747 per square kilometer. Every acre of barren ground that science can turn into arable land means a new chance for life for a peasant family.

All the countries of the Middle East, thus, are on the move. Their educational problems in practically every case are now directly linked with technical and economic development plans. Even in Libya, where almost no primary schools at all existed in the past, every school built has an immediate repercussion on local crafts and agriculture (the modern schools now going up stress manual work). Hence, one cannot speak of technical assistance in the Middle East without also speaking of the new education in the Middle East, for the assistance would mean little without the remarkable progress being made in education.

It is here that the technical experts Unesco has sent to the Middle East are working—in technical school workshops, in university laboratories, in libraries and nursery schools, and sometimes in the offices of a Cabinet Minister where new education programmes are being drawn up.

The work of most of these men may seem undramatic and uninspiring but in reality it is filled with moving excitement and drama. The Unesco experts working in this part of the world are in fact a fortunate and enviable group. For they are conscious of helping old nations suddenly grown young in reaching for a new future. One thing they are certain of: they are not wasting their time. As one of them told me, quoting a phrase of Charles Malik, the Lebanese delegate to the United Nations: "The sun is risen in the Orient on a world hard at work; only those who are asleep do not see it."



OUTDOOR ACTIVITIES form an important part of the primary school programme. The school is also a training ground for the young Iraqi teachers who have been recruited.

A BREAK FROM CLASS for the boys and girls. At Dujaila, Iraqi children have discovered a new kind of learning in which games and " dressing up " also have their place in the programme.

HOUSEWIVES have come to learn about improved health and home conditions in the women's classes. Sewing, cooking and baby care are among the subjects taught them.

A SCHOOL FARM and a garden now provide practical lessons in benefits of new farming methods. A club for young farmers and co-operatives are also in action here.

A NEW SPIRIT IN DUJAILA

Ten years ago the flat alluvial plain at Dujaila in the bend of the Tigris river, south east of Baghdad (Iraq) was a parched wilderness. Today, irrigation canals fed from the Tigris have made it a huge chessboard pattern of fields and farms where 2,000 colonists cultivate wheat and barley and raise sheep and cattle. Dujaila is the largest land settlement in the Near East and also the site of the first fundamental education pilot project in this region. Helped by farmers, a Unesco team has been developing this centre since 1952 and today it has become the first village and the " nerve centre " of this land of farms. Men, women and children come to its schools and workshops to free themselves from illiteracy, to learn the skills of metalwork, carpentry, weaving, spinning, building and simple farm mechanics and to find out how they can protect themselves from disease. Since prejudices against education for women have been overcome, a new girls' school has been opened and now has over 50 pupils. Young Iraqi are trained at Dujaila as teachers in fundamental education. Above all, this village education centre has made the people of Dujaila a community-minded group.

LETTERS TO THE EDITOR

EDITOR'S NOTE

In its first issue of 1954 The Courier *published a series of articles on the world's language problems. These brought many letters from readers, particularly on the question of international languages, of which a few were published in our No.* 3 *issue. Since then several hundreds of Esperantists have written us from places as far apart as Japan and Sweden, taking exception to some of the statements made in these letters. Lack of space makes it impossible to print even a small proportion of this correspondence, but we believe that the points raised are adequately covered in the long letter from Professor Ivo Lapenna of the Universal Esperanto Association, Rickmansworth, England, which we publish below almost in its entirety.*

Sir,

In *Courier* n° 3, 1954, you were good enough to publish my letter concerning the international petition in support of Esperanto and the decision taken by the Seventh Session of the General Conference of Unesco with regard to it. In the same number you also published several other letters on the language question.

The Executive Committee of the Universal Esperanto Association has requested me to draw your attention to a number of important errors :

In these letters... may be found a whole collection of fallacious and fantastic assertions. The following are but a few of them :

(a) Mr. Jacob among other things states that Volapuk "was once spoken by two million people". This project was, in fact, never transformed into a living language. During the first Volapuk congress in 1884 those attending had to speak—German! On account of its internal structural deficiencies, great difficulty and, in addition, the impossibility of normal evolution (dictatorship by one person instead of evolution brought about collectively by the users), this project—like many others before and since—soon ceased to attract any attention.

(b) There is a great tendency to speak about "international languages" (in the plural). Messrs. Jacob, Thersant (French edition) and Brismark do so. It is true that there have been and presumably, will be in future many *projects* for a common tongue. After the genius of Dr Zamenhof had found the solution, any educated person who cared to interest himself in the problem could, in the course of a few days, produce some sort of reasonable project.

⁂

Much longer, much more arduous, is the transition from a project to a living, completely functioning *language*. Esperanto alone has accomplished this transition. It alone—with its abundant translated and original literature, numerous magazines, scientific and specialist reviews, radio broadcasts, congresses and conferences, and thousands and thousands of people who use it daily in international contacts — has become an indisputable social reality.

Not to understand the part played by quantity (not only regarding the number of persons, but also regarding the diversity of publications, and many-sided, practical applications of the language, as also, *resulting from this*, the internal evolution of the language itself) in the determination of quality, in this case the distinction between an individualistic project and a socially living language, is to understand nothing, absolutely nothing, of the matter.

(c) Mr. Thersant (in the French edition) misrepresents the facts when he says that in 1922 "cet idiome... fut rejeté" by the Commission on Intellectual Cooperation of the League of Nations "après les sévères conclusions du rapporteur, qui demandait surtout de ne point apprendre l'Esperanto aux enfants, afin de ne point déformer leur esprit".

I have re-read the minutes of the meeting in question (League of Nations, Committee on Intellectual Co-operation, Minutes of the Second Session, 1923). Certainly, at this session a multitude of fantastic assertions were made about Esperanto (e.g. regarding the number of words in the language). This is partly understandable (but nevertheless unpardonable) when one considers that none of the members of the Committee knew Esperanto.

It is as though people with no idea at all of, say, Chinese, or any other language, were to pass judgment on the qualities of that language ! In such circumstances it seems to me that all inaccurate "evidence" does more harm to the scientific reputation of the persons giving it than to the subject under consideration!

Setting aside my personal opinion, however, I must say that, in spite of careful perusal, I did not find in the minutes the words quoted by Mr. Thersant, who, incidentally, does not know the year of this famous meeting. The committee decided that it could not recommend the teaching of Esperanto in schools, but at the same time it declared that "it does not dispute the practical advantages which would result from the universal adoption of an artificial language".

Dr. Nitobe (Japan) expressed the opinion that in twenty years time, when the number of people speaking Esperanto would have increased, "they might hold up any adverse and unfavourable resolution of this Committee as a sign of its lack of wisdom". The League of Nations, probably for this very reason, *never approved* the decision of the Committee on Intellectual Co-operation.

The report accepted unanimously by the Third Assembly of the League of Nations on September 21st, 1922, accordingly remained fully valid. This ended with the following words :

"Language is a great force, and the League of Nations has every reason to watch with particular interest the progress of the Esperanto movement which, should it become more widespread, may one day lead to great results from the point of view of the moral unity of the world."

(d) There is also a tendency to speak of the degree to which this or that project is " scientific ". This is not the place to discuss this aspect of the matter. One thing, however, is certain : an essential prerequisite of the scientific consideration of any question is to know — and to recognise — the facts. Then, and only then, can one begin to analyze them. It is precisely this — nothing more — which the Universal Esperanto Association, which I have the honour to represent, and I personally expect of Unesco. With regard to the assertions that Esperanto does not enjoy the support of linguists, may I draw your attention to the fact that among the signatories to the Petition to Unesco were more than 1,500 linguists and over 40,000 teachers, many of whom were language teachers.

⁂

In connection with all that has been said there arises a question of principle, namely, whether it is prudent for a review such as the *Courier* to publish letters which contain grave, factual errors. Democracy demands that the opinion of each individual should be fully respected. That is beyond question. Nevertheless, the truth of assertions of fact should be verified. I very much doubt whether the *Courier* would publish a letter which stated, for example, that Beethoven composed 99 symphonies! To say that Volapuk was spoken by two million people is really no less fantastic!

I ask your pardon for the length of this letter. If the Petition in favour of Esperanto were not at present before Unesco, if, therefore, the International Language question were not in a sense *sub judice*, I should have been much briefer. Under the circumstances it seemed essential to draw attention to at least the basic errors and inaccuracies which, if left uncorrected, could endanger the objectivity of the decision to be taken on this matter at Montevideo.

Yours faithfully,

Prof. Ivo LAPENNA,

Universal Esperanto Association,
Rickmansworth,
England.

From the Unesco Newsroom...

★ **PORTABLE GUIDES :** *Visitors to the American Museum of Natural History, New York, now tour the exhibits carrying a "guide" slung from their shoulders. These are portable short-range radio receivers, known as guide-a-phones, which pick up recorded talks on the exhibits sent out by transmitters in each hall.*

WORLD FACTS : According to statistics available in September 1953 the total world population has now reached 2,460,000,000. Between 45% and 50% of people over ten years of age are still illiterate. To give all children between the ages of 5 and 14 a primary education, authorities would have to provide schools and teachers for between 500 and 550 million children. These three items of information are published in the second edition of "Basic Facts and Figures" in which Unesco has collected world-wide information on illiteracy, education, libraries, museums, books, newspapers, newsprint, film, radio and television.

★ **ART AND EDUCATION:** *Education through art is to be promoted on a world-wide basis by a newly formed organization — The International Society for Education Through Art— which recently held its first General Assembly in Unesco House, Paris. The society will serve as a channel of information for art teachers and specialists, an agency for exchanges and a centre of co-ordinated research and action. Membership is open to individuals as well as groups.*

WORLD CHILDREN'S DAY, 1954 : The International Union for Child Welfare in Geneva and its affiliates in forty countries will celebrate World Children's Day on October 4. They have chosen Article II of the Declaration of the Rights of the Child — "The child must be cared for with due respect for the family as an entity" — as the theme for this year's celebration.

★ **TV v CLASSROOM TEACHING:** *How effective are teaching courses by television, as compared with classroom teaching? Students at the University of Houston, Texas, U.S.A. recently helped educators to compare the two methods. One student group attended normal classes. The other saw the same lecturers and demonstration by television. Later examinations revealed no significant difference in what the two groups learned. Further experiments are now being carried out.*

BOOKS FOR THE BLIND: Many thousands of hours of patient and exacting work, much of it voluntary, has given to the Peruvian National Union for the Blind the second largest Braille library in the Western Hemisphere. Since it was established 13 years ago, the library has accumulated a stock of 3,400 books — all of them made by hand. Works include the greatest books of world literature.

★ **CULTURAL EXCHANGE:** *A new cultural agreement between Luxemburg and France provides for reciprocal fellowships, the equating of certain academic degrees and studies, exchanges of teachers, students and artists and other cultural exchanges of books, radio programmes and films.*

NEW RURAL TEACHERS: A new type of fundamental education teacher who will work in the rural areas of Cuba is to be trained at the fundamental education pilot centre which the Cuban Ministry of Education has decided to establish. Five Cuban graduate teachers from Unesco's Regional Fundamental Education Centre at Patzcuaro, Mexico, will help to train these new rural teachers.

★ **CONTINENTAL MODEL :** *A Unesco library pilot project designed as a model for public library development throughout Latin America is being set up in the Palacio de Bellas Artes, in Medellin, Colombia. The library is to be run on similar lines to the Delhi Public Library organized by the Government of India and Unesco. It will co-operate with United Nations fundamental education programmes in Colombia.*

DOLLS OF MANY LANDS: Dolls from many countries, each dressed in the national costume, will form an international exhibition in New Delhi early next year. The exhibition is regarded as a simple and effective way of making the children of India aware of the culture and traditions of other countries. The dolls will visit many parts of India before being housed in New Delhi as a permanent exhibit.

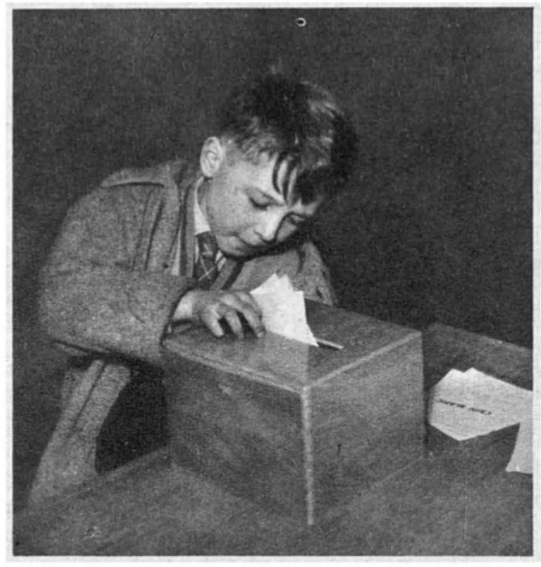
★ **'VACATIONS ABROAD' :** *Unesco has recently issued under the new title of "Vacations Abroad" a popular publication that has appeared in previous years as a summer-time supplement to the well-known "Study Abroad". "Vacations Abroad" provides information about more than seven hundred vacation courses, summer schools, tours and work camps organized in fifty-one countries, all of which might meet the needs of persons who want to combine educational experience with foreign travel during their summer holidays. The book is published in a trilingual edition—in English, French and Spanish.*

TWO "SILVER ANNIVERSARIES": It is just 25 years since the International Bureau of Education changed its status from a private institution to that of an intergovernmental organization. On July 25, 1929, government representatives signed an agreement recognizing the need "to collect educational data through investigation and research, and to facilitate the exchange of such information so as to encourage each country to profit by the experience of others.". The IBE is also celebrating the 25th anniversary of the appointment of Professor Jean Piaget, the Swiss educator and psychologist as its Director.

★ **BULGARIA AND UNESCO:** *Bulgaria has applied for membership of Unesco. As this country is not a member of the United Nations, its request has first to be approved by the Economic and Social Council of the United Nations. Bulgaria may then join Unesco upon recommendation by Unesco's Executive Board and approval by a two third's majority vote of the General Conference of the Organization.*

UNESCO - ZAANDAM - LIBYA: Unesco in Paris, the newly independent nation of Libya and Zaandam, a small town near Amsterdam will be linked for two weeks in September through a special programme being held in this Dutch town. Two Unesco exhibitions will be shown—"Education and Peace", in the schools, and "Men Against the Desert", in the town's shop windows. The Unesco film, "World Without End", will be screened at an open-air meeting. A Zaandam citizen, Mr Adrian Pelt was U.N. Commissioner in Libya until the country became independent in 1952. Unesco Gift Coupons—which can be used to aid educational and cultural institutions—will be on sale, and those bought by the people of Zaandam will be sent to the Primary Teacher Training Centre in Tripolitania Libya.

★ **PEN FRIENDS WANTED:** *Young people in Istanbul, Turkey, wish to exchange letters, postcards, stamps and publications with boys and girls overseas who write in French, German or English. Those interested should write to: Türkiye Genclik Haberlesme Kulübü, Gümüssuyu Ogrenci Yurdu, Istanbul.*



THE CHILDREN VOTED

Fifteen hundred primary school children recently sat as judges in a film competition organized by the International Children's Centre in Paris with the co-operation of educators, psychologists and film producers. The aim was to determine the kinds of films children prefer, to establish criteria for good-quality children's films and to promote their production. The children cast their vote for the film they liked best and also explained the reasons for their choice. The greatest value of the competition lay in the analysis of the children's spontaneous reactions to each film, obtained from special recording devices. These fixed with precision the audience reactions throughout each phase of the film. The information was completed by observers noting the actions and comments of the children and from photographs taken in the dark by ultra-violet rays.

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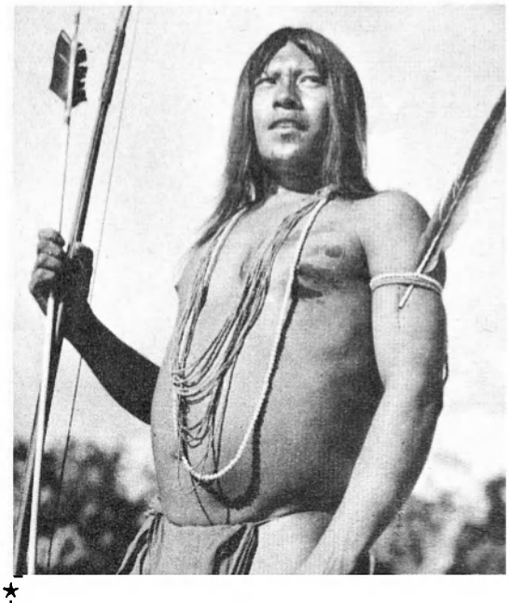

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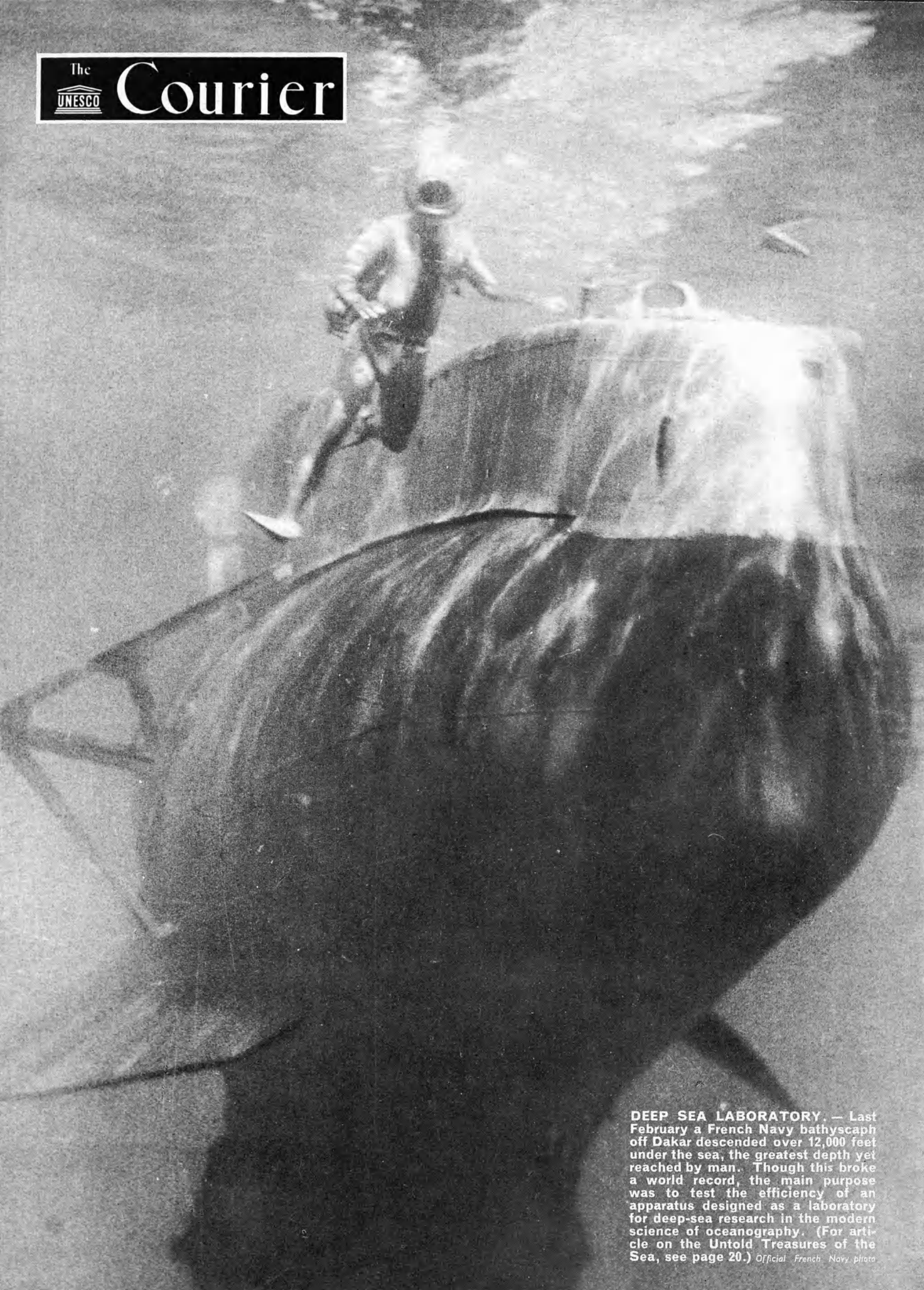

DEEP SEA LABORATORY. — Last February a French Navy bathyscaph off Dakar descended over 12,000 feet under the sea, the greatest depth yet reached by man. Though this broke a world record, the main purpose was to test the efficiency of an apparatus designed as a laboratory for deep-sea research in the modern science of oceanography. (For article on the Untold Treasures of the Sea, see page 20.) *Official French Navy photo*